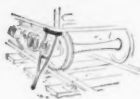


RAILWAY AGE

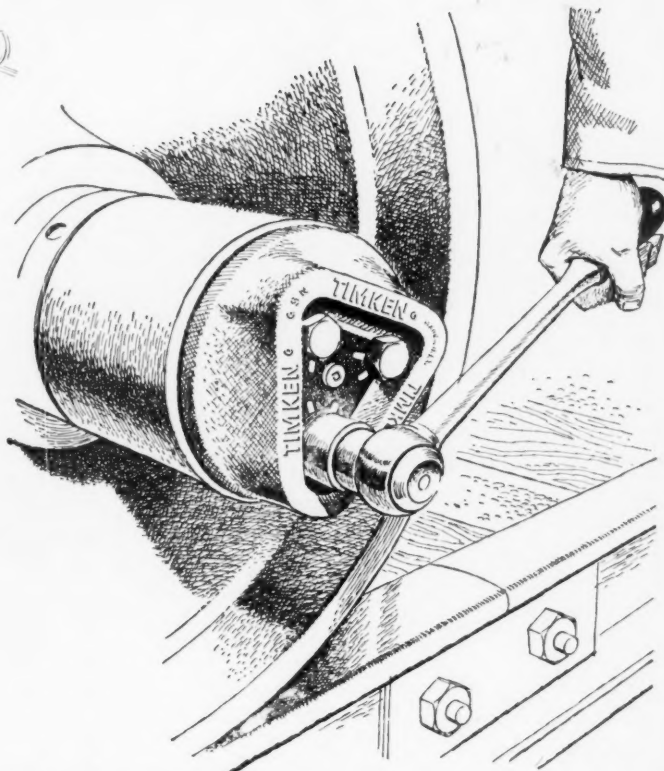
FEB. 25, 1957 • THE INDUSTRY'S NEWSWEEKLY

YOU CAN'T CURE WITH A "CRUTCH"



The one sure Cure for the Hot Box Problem: Timken® Bearings

*...and they pay for themselves
over and over and over in operating
and maintenance savings*



USE of "crutches"—devices attempting to improve friction bearing performance—will never answer the hot box problem. The one sure cure is Timken® tapered roller bearings, because they eliminate the cause of hot boxes—the friction bearing itself.

EXTRA SAVINGS, TOO

With Timken bearings, you also slash the cost of bearing inspection and lubrication. Costs that hang on even with crutch devices. Timken bearings cut terminal bearing inspection time by 90%, reduce lubricant costs as much as 95%. The fact is, the new Timken heavy-duty type AP (All-Purpose) bearing assembly can go three years without the addition of lubricant. When all railroads go "Roller Freight", they'll save an estimated \$224 million a year, earn about a 22% net annual return on the investment.

Doing away with the hot box problem is

THE TAPER DOES IT

a simple job for Timken bearings. They roll the load instead of sliding it. There's no metal-to-metal sliding friction as with friction bearings. And the tapered design makes Timken the only roller bearing you can be sure will cure the hot box problem and reduce operating and maintenance costs to the lowest possible point. The taper in Timken bearings prevents lateral movement. There's no pumping action—less lubricant is required. There's no scuffing or skewing—bearings last longer.

And to be sure of the quality of Timken bearings from melt shop to final bearing inspection, we make our own steel. We're America's only bearing manufacturer that does.

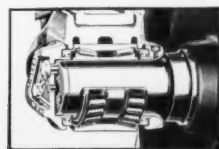
PRACTICAL CONVERSION PLAN USED

Figuring in the extra cost of buying and maintaining "crutch" devices that don't cure,

it's easily seen that the difference in price between friction and roller bearings is smaller today than ever. And now a program adopted by one major American railroad promises an even greater reduction. This railroad has put into effect a practical program for converting to "Roller Freight". It works like this. Every freight car coming into the shops for major repairs is converted to roller bearings. This simple, workable plan 1) facilitates a steady shop and labor schedule, keeping installation costs to a minimum, 2) allows the railroad to absorb the cost for its conversion to roller bearings over a period of years.

Instead of trying to shore up friction bearings with costly "crutches", cure the hot box problem and gain maximum savings in operating and maintenance costs with Timken bearings. The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ontario. Cable address: "TIMROSCO".

Only **TIMKEN**® bearings cure the hot box problem and cut operating and maintenance costs to a minimum





EARLY TELETYPEWRITER



TELETYPE MODEL 28 PRINTER

50 YEARS THAT CHANGED THE PICTURE

The need for a reliable printing telegraph instrument that would provide a typed record of the message for both sender and receiver brought the company now known as the Teletype Corporation into the picture in 1907. From the halting performance of the original page printer to the smooth 100 words per minute of today's precision equipment has been a major step in communications.

But today Teletype equipment is often far more than a communication instrument. It is a basic element in production control systems... its ability to transmit and reproduce text and punched tape is harnessed to office automation... it provides a "conveyor system" for channeling complex raw data to a computing center thousands of miles away—and getting the answers back in a twinkling.

Indeed, Teletype machines have made many of the dreams of 1907 a daily part of today's business world. And the horizons widen daily as new dreams occupy our engineers and keep our laboratories humming.

If you would like a copy of our booklet, "The ABC's of Teletype Equipment," write to Teletype Corporation, Dept. RA-2, 4100 Fullerton Ave., Chicago 39, Illinois.



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Western Electric Company
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1957 Golden Anniversary Year

Frog and Switch Bolts

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FULL SIZE RANGE**



Whatever your requirements for frog bolts or switch bolts, you can count on getting the style and size you want when you choose Bethlehem.

Bethlehem Frog and Switch Bolts are made of carbon steel in all standard types and sizes, and can be supplied with any type of standard nut. They are heat-treated to meet the requirements of AREA 1953 Spec., or ASTM Spec. A183-55, and can be counted on for a good holding job. Write to us for complete information.

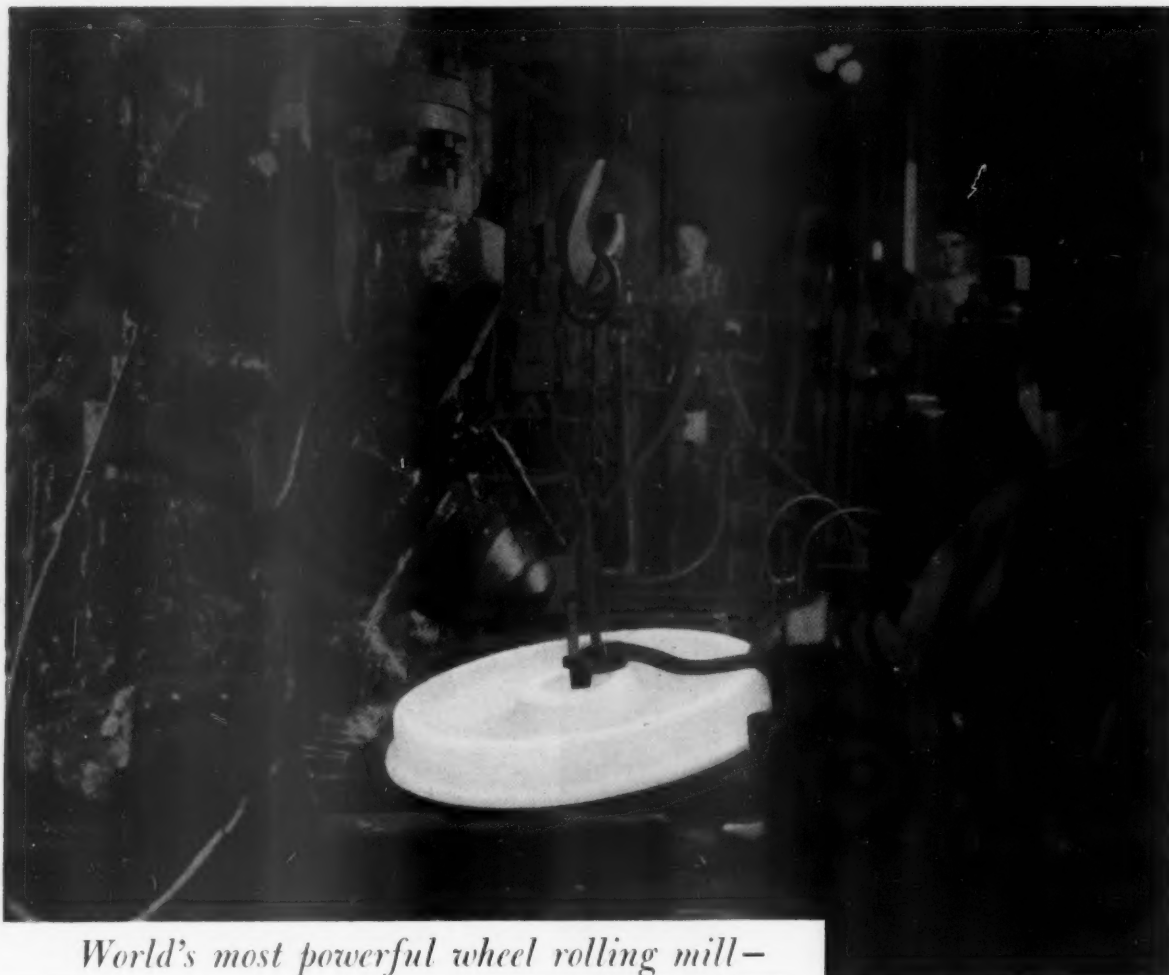
OTHER BETHLEHEM FASTENERS FOR RAILWAYS

| | |
|---------------------|-------------------|
| TRACK BOLTS | ROCK ANCHOR BOLTS |
| SPIKES | BRAKE PINS |
| MACHINE BOLTS | CARRIAGE BOLTS |
| HIGH-STRENGTH BOLTS | |

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BETHLEHEM, PA.

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Bethlehem Pacific Coast Steel Corporation. Export
Distributor: Bethlehem Steel Export Corporation*

BETHLEHEM STEEL



World's most powerful wheel rolling mill—

puts extra mileage in

EDGEWATER WHEELS

The homogeneous structure of the steel in Edgewater railroad wheels is an important factor in producing maximum service life. This characteristic is the result of advanced metallurgical practices which insure the quality of steel and carefully control the heating and forging operations. Without reheating, Edgewater's rolling process expands the rim to size and forms the flange.

Every step in the manufacture of Edgewater Rolled Steel Wheels is carefully controlled to insure the optimum properties in the finished product.

The photograph shows a rolled wheel being removed from the rolling mill. After controlled cooling and when specified, heat treating, Edgewater Railroad Wheels are machined to exacting A.A.R. standards.



Edgewater Steel Company PITTSBURGH 30, PA.

*Makers of Rolled Steel Wheels for Freight Cars,
Passenger Cars and Diesel Locomotives*



RAILWAY AGE The Industry's Newsweekly

Vol. 142, No. 8
February 25, 1957

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Are modern box cars obsolete? p.10

Gypsum industry traffic men say that box cars being ordered now "are generally antiquated from a design standpoint for today's needs." Their ideal car would be 50 ft long, smoother riding and easier to load.

Frisco gets five cars to do seven's work p.18

It cuts length of trains, too, by using 70-ton pulpwood cars instead of 50-tonners.

What's going on—when and where p.37

It's all right here for the reading: the program for the AREA's 56th annual meeting next week at St. Louis.

Undercover servicing at Council Bluffs p.38

Nothing secret about it, though. It's the Union Pacific's new installation for fueling, sanding and watering diesels—all under one roof.

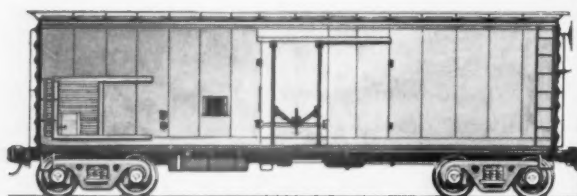
Nuclear studies leap ahead to new horizons p.42

Number 5 in our railway research series is the story of the Rio Grande and the atom. It's an account of how this road's nuclear propulsion probe opened the door to unexpected applications.

The Action Page—What about subsidies? p.68

The Lackawanna's Mr. Shoemaker rejects the idea of "federal help" to finance the freight car fleet. "Danger, defeatism and deterioration" would be the price, he contends.

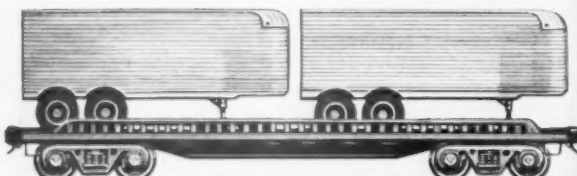
38 LEADING LINES NOW HAVE IN SERVICE OR ON ORDER 9313* CARS WITH DEPENDABLE HYATTS ... including:



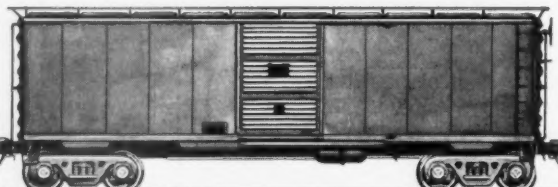
2385* refrigerator cars



1929* ore cars and
covered hoppers



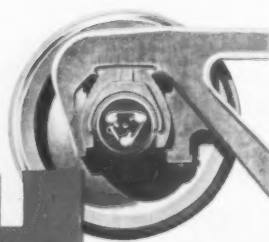
728* T.O.F.C. cars



1304* box cars

* latest available figures at press time

Watch "WIDE WIDE WORLD"
Sundays on NBC-TV



Another  contribution to railroad prosperity

HYATT HY-ROLL BEARINGS

FOR NON-STOP FREIGHT

Already more than 100 million freight car-miles have proved the dependability of HYATT'S long-lived straight cylindrical roller design. No wonder more and more railroads are switching to HYATT Hy-Rolls! They have fewer parts than other roller bearings. They need no fitting adjustments, and can be *completely* dismantled for inspection. Races are forged of finest high-nickel steel for longer wear. Hy-Rolls take only ten ounces of grease every three years. Low-cost, *low-upkeep* HYATT Hy-Rolls are your best buy for the long haul! Hyatt Bearings Division, General Motors Corporation, Harrison, N.J.

Current Statistics

| | |
|---|------------------|
| Operating revenues, twelve months | |
| 1956 | \$10,550,936,013 |
| 1955 | 10,106,761,916 |
| Operating expenses, twelve months | |
| 1956 | \$8,108,273,368 |
| 1955 | 7,641,369,403 |
| Taxes, twelve months | |
| 1956 | \$1,121,323,051 |
| 1955 | 1,081,420,746 |
| Net railway operating income, twelve months | |
| 1956 | \$1,068,343,682 |
| 1955 | 1,128,867,391 |
| Net income, estimated, twelve months | |
| 1956 | \$874,000,000 |
| 1955 | 915,000,000 |
| Average price 20 railroad stocks | |
| February 18, 1957 | 89.76 |
| February 20, 1956 | 97.87 |
| Carloadings revenue freight | |
| Six weeks, 1957 | 3,878,522 |
| Six weeks, 1956 | 4,078,090 |
| Average daily freight car surplus | |
| Wk. ended Feb. 16, 1957 .. | 7,859 |
| Wk. ended Feb. 18, 1956 .. | 4,823 |
| Average daily freight car shortage | |
| Wk. ended Feb. 16, 1957 .. | 2,370 |
| Wk. ended Feb. 18, 1956 .. | 3,284 |
| Freight cars on order | |
| February 1, 1957 | 114,656 |
| February 1, 1956 | 144,946 |
| Freight cars delivered | |
| One month, 1957 | 7,822 |
| One month, 1956 | 4,199 |
| Average number railroad employees | |
| Mid-January 1957 | 996,105 |
| Mid-January 1956 | 1,045,815 |

ADVERTISING SALES DEPARTMENT

New York 7, N.Y., 30 Church st., WO-4-3060
C. W. Merriken, J. S. Vreeland, vice-presidents, F. T. Baker

Chicago 3, Ill., 79 W. Monroe st., RA-6-0794
J. R. Thompson, vice-president, J. W. Craswell, J. D. Dolan, W. J. Gatenby

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MA-1-4455, H. H. Melville, vice-president
C. J. Fisher, J. C. Lyddy

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J. S. Crane

Dallas 19, Tex., 3908 Lemmon ave.,
Lakeside 2322, Joseph Sanders

Los Angeles 17, Cal., 1151 W. Sixth st.,
MA-6-0553, Fred Klaner, Jr., B. J. Erickson

Portland 5, Ore., 1220 S.W. Morrison,
Ca-7-4993, L. B. Conaway

San Francisco 4, Cal., 244 California st.,
GA-1-7004, Lewis Vogler

London E. C., 2, Eng., 48 London Wall
Sibley-Field Publishing Co., Ltd.

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Wittelsbacher Allee 60
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ROAD EMPLOYEES ELSEWHERE IN THE WEST-
ERN HEMISPHERE, \$10 A YEAR, IN OTHER
COUNTRIES, \$15 A YEAR—TWO-YEAR SUBSCRIP-
TIONS DOUBLE ONE-YEAR RATE. SINGLE COP-
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SUBSCRIPTIONS WRITE R. C. VAN NESS, CIRCUL-
ATION DIRECTOR, 30 CHURCH ST., NEW YORK 7.

Week at a Glance CONTINUED

SHORT AND SIGNIFICANT

Are more travelers . . .

going to florida by rail this year? A Hertz survey shows that cars rented by rail customers at Florida points are running 25% of the total—3% higher than the national average. Hertz business at winter resort centers is up 57% over last year.

Non-op unions will support . . .

Harris-Wolverton bills liberalizing retirement and unemploy-ment benefits as an "initial step toward . . . guaranteed sever-ance pay for railroad employees," says George E. Leighty, Telegraphers' president and negotiations chairman for 11 non-op unions. The recent severance-pay agreement between non-ops and the Chicago & North Western (Railway Age, Jan. 28, p. 11) "is a step in the right direction but it doesn't go far enough," Mr. Leighty says.

Proposal to abandon . . .

the Panama Railroad and build a highway on its roadbed has been rejected by a committee of the House of Representa-tives. Rejection was based primarily on a finding that the railroad performs the most economical form of mass trans-shipment, despite a deficit operation in fiscal 1956.

Katy's public relations department . . .

is being abolished. M. R. Cring, assistant to president—public relations, will assume duties in the road's executive depart-ment. All remaining members of the department have been dismissed.

"No Comment" . . .

comes from the Rock Island on reports that it may acquire the 144-mile Fort Dodge, Des Moines & Southern and the 30-mile Des Moines & Central Iowa. A year ago Rock Island and Illinois Central bought another Iowa short line, the Waterloo, Cedar Falls & Northern.

BRT emergency board . . .

was to hear final arguments in Washington February 23. Date due on the board's report to the President has been extended to April 18.

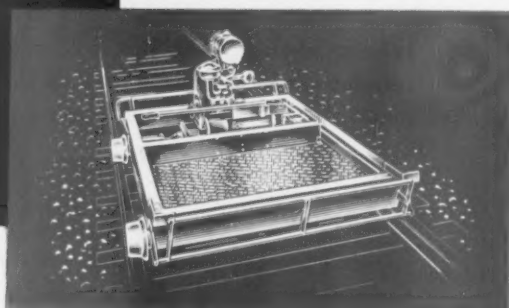
Matisa

ANOTHER MATISA ELECTRIC FLASH RAIL WELDER NOW IN PRODUCTION

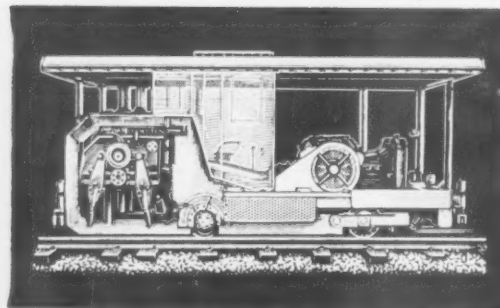


**TO MULTIPLY THE LIFE OF YOUR
RAIL with WELDS of the HIGHEST
QUALITY at the LOWEST PRICE
and the MAXIMUM PRODUCTION
RATE**

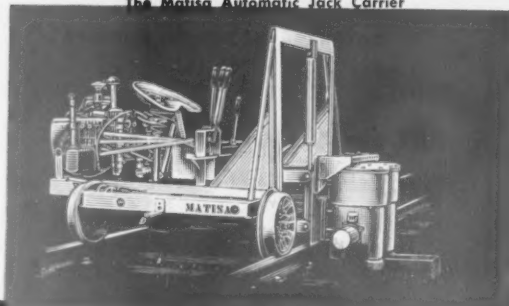
other **MATISA** TRACK MAINTENANCE MACHINES



The Matisa Automatic Jack Carrier



The Matisa B-24 Selective-Depth Tamper



The Matisa Tie Renewal Machine



The Matisa Track Inspection Car

For detailed information on the flash rail welder see page 294 of the 8th edition of the Railway Track & Structures Cyclopedia—or send for literature on this or other machines shown at right.

Matisa

EQUIPMENT CORPORATION
1020 WASHINGTON AVE. • CHICAGO HEIGHTS, ILLINOIS

HEDGING THE FUTURE . . .

Funding Can Trim Pension Costs

Advance funding of a pension plan costs more initially, but compound interest plus tax advantages can provide long-term savings.

This is the gist of findings in a recently completed study by one Midwestern railroad. This road—which pleads anonymity because its funding plan still is pending—has a supplemental pension program covering some 450 officers and excepted employees. Up to now the plan has been on a pay-as-you-go basis.

When the matter of advance fund-

ing came up, an investigation turned up these facts:

Cost of advance funding during the first 10 years would be sharply higher than pay-go. Excluding present pensioners, the added outlay alone would run to \$1,571,793. This is to build up funds to cover service liabilities.

These deposits, plus others for normal retirements, including widows' pensions, and interest at 2½% compounded annually, would create a pension fund approaching \$4,500,000 in a decade.

During the next 18 years, the cost of advance funding would be \$1,571,793 less than a pay-go plan. Cash expended in the first 10 years is thus restored.

Subsequent cash savings, funding over pay-go, would amount to about \$90,000 a year.

These highlights from the road's study indicate advance funding has merit. It requires forward planning. Costs are higher initially but there are offsetting advantages—level costs unless benefits are changed, tax-free interest earnings, flexibility in annual contributions, maximum assurance of ultimate benefits for covered employees, and tax savings arising from annual deposits which are deductible.

A pay-as-you-go plan, on the other hand, while it avoids advance outlays for past service liabilities, has its own peculiar flaws. The pension load, requiring monthly payments from the cash account, tends to increase; there is little flexibility in year-to-year cost, and retired employees or those near retirement know their pension prospects hinge on continued profits of the company.

Of course there is a third means of underwriting a pension plan, one in which the single sum required to pay pensions is set aside at retirement time. Terminal funding, as this is called, has the drawback of being less flexible from a tax standpoint. The government imposes minimums below which annual company payments cannot fall and still be deductible for tax purposes. In addition, though retired employees are safe anyone approaching retirement has no such security until a sum is advanced in his behalf.

What to do with reserves. The road's investigation of pension problems went beyond an analysis of basic plans to examine funding media as well.

To receive favorable tax treatment to a pension plan the employer is required by the Treasury Department to pay his contributions irrevocably to a trust company, an insurance company or some other third party. That

A comparison (after taxes) of maximum advance funding of pensions, and payment of pensions on a pay-go basis; and net effect on cash

XYZ RAILROAD

| | Advance Funding | Pay-go Basis | Excess of Advance Funding over Pay-go | Growth of Pension Fund |
|------|--------------------|-----------------|--|---------------------------|
| 1956 | \$247,346 | \$ 8,792 | (\$238,554) | \$ 511,896 |
| 1957 | 247,346 | 23,499 | (223,847) | 1,007,589 |
| 1958 | 247,346 | 39,798 | (207,548) | 1,483,176 |
| 1959 | 247,346 | 57,002 | (190,344) | 1,936,115 |
| 1960 | 247,346 | 73,143 | (174,203) | 2,369,078 |
| 1961 | 247,346 | 86,508 | (160,838) | 2,774,146 |
| 1962 | 247,346 | 97,446 | (149,900) | 3,157,032 |
| 1963 | 247,346 | 106,126 | (141,220) | 3,533,348 |
| 1964 | 182,045 | 116,237 | (65,808) | 3,899,869 |
| 1965 | 149,393 | 129,862 | (19,531) | 4,259,171 |
| 1966 | 96,717 | 140,495 | 43,778 | 4,617,248 |
| 1967 | 70,375 | 145,830 | 75,455 | 4,721,658 |
| 1968 | 70,375 | 152,646 | 82,271 | 4,688,266 |
| 1969 | 70,375 | 158,661 | 88,286 | 4,641,221 |
| 1970 | 70,375 | 161,354 | 90,979 | 4,587,189 |
| 1971 | 70,375 | 163,233 | 92,858 | 4,527,708 |
| 1972 | 70,375 | 163,441 | 93,066 | (See Note) |
| 1973 | 70,375 | 163,440 | 93,065 | |
| 1974 | 70,375 | 163,440 | 93,065 | |
| 1975 | 70,375 | 163,440 | 93,065 | |
| 1976 | 70,375 | 163,440 | 93,065 | |
| 1977 | 70,375 | 163,440 | 93,065 | |
| 1978 | 70,375 | 163,440 | 93,065 | |
| 1979 | 70,375 | 163,440 | 93,065 | |
| 1980 | 70,375 | 163,440 | 93,065 | |
| 1981 | 70,375 | 163,440 | 93,065 | |
| 1982 | 70,375 | 163,440 | 93,065 | |
| 1983 | 55,166 | 128,120 | 74,450 | |
| 1984 | 15,209 | 35,320 | 18,615 | |
| 1985 | 70,375 | 163,440 | 93,065 | |
| 1986 | 70,375 | 163,440 | 93,065 | |
| 1987 | 70,375 | 163,440 | 93,065 | |
| 1988 | 70,375 | 163,440 | 93,065 | |
| 1989 | 70,375 | 163,040 | 92,665 | |
| 1990 | 70,375 | 163,040 | 92,665 | |
| 1991 | 70,375 | 163,040 | 92,665 | |
| 1992 | 70,375 | 163,040 | 92,665 | |

During this period \$1,571,793 more will be spent by Advance Funding than on a pay-as-you-go basis.

During these years the Advance Funding deposits will be \$1,571,793 less than the pay-as-you-go basis, so that in 1983 the excess deposits during 1956/65 will have been restored to cash.

In the 10 years following Advance Funding will have saved \$854,600 as compared to pay-as-you-go.

NOTE: By 1972, and thereafter, the Pension Fund will remain at approximately \$4,500,000.

way, the contributions are allowed as a currently deductible expense without taxation to the employees until they receive the pensions.

In this examination the road considered three means of handling a pension reserve fund—insured funding, trustee funding (a bank) and split funding.

The latter of these undertakes to combine the strong points of each of the other two. Insurance companies, for example, usually earn a higher return on fixed dollar obligations because of the class of bonds available

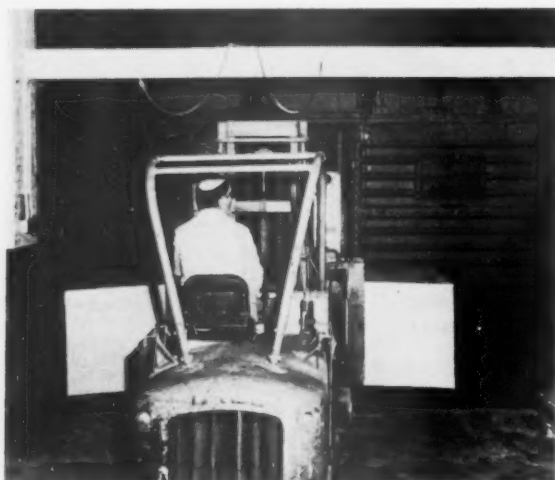
to them and because of their large investments in residential mortgages. Trust companies, on the other hand, have more latitude in equity investing, resulting in higher current yield and prospect of capital appreciation.

There are two ways in which insured funding and trustee funding can be combined.

If straight split funding is followed, a percentage of the available funds (say, 40%) are placed with a bank and the remainder (60%) with an insurance company. Thus the higher yields and possibilities of apprecia-

tion of the trust can be obtained, along with the security of an insured plan. Purchase price of securities is used to maintain the 40/60 ratio.

Terminal insured funding provides a slightly different means of combining the trust and insured plans. Under this arrangement, trustee funding is used during the accumulation period in hope of obtaining the higher yield. Then, when an employee retires, sufficient withdrawal is made from the trust fund to purchase a lifetime annuity contract for the employee retiring.



WON'T FIT is lament of gypsum wallboard shippers who say their loading operations are stalled when they use "standard" box cars (left), with doors that won't accom-



modate 12-ft long panels. Needed, they say, are 15-ft-wide doorways (right), to speed loading. A study by these shippers raises the question . . .

Are Modern Box Cars Obsolete?

Gypsum industry traffic men, who say they are, want an "ideal car:" 50 ft long, stronger, and easier to load

Railway box cars being ordered now, according to a report released in Chicago by the Gypsum Association, "are generally antiquated from design standpoint for today's needs."

Based on what was termed an "exhaustive study" of transportation methods, the report included a series of recommendations for development of an "ideal box car" both for movement of gypsum wallboard and as "standard general use equipment."

The report was made by a traffic committee of the Gypsum Association. Gypsum industry traffic men were especially critical of the length and door size of the average box car. They said average car dimensions "stymie economical loading of gypsum

wallboard"—especially since building trends now call for this commodity in widths of 12 ft or longer.

Car openings of not less than 15 feet (single or double door) were urged, with the added recommendation that the doors be center-located rather than staggered, to facilitate loading. "A decided step-up" in production of the "ideal" 50-ft box car was advocated.

Other points made in the report were that: standard car interior height and width are adequate but car floors and ends generally need more strength and rigidity to accommodate the weight of fork lift trucks and to minimize dunnage use.

Additionally, the report held, "ex-

cessive damage in transit, resulting from longer trains and high speed movements, points to the need for improvements in coupling, underframes and suspension . . . also, for increased ability to absorb impacts in switching, stopping and starting.

The association also endorsed nailable steel flooring in cars and called for "universal adoption of fastening or tie-down devices as a permanent part of railway box car equipment, preferably made flush with or below level of floor and/or side walls."

Figures on damage in transit to gypsum wallboard could not be provided by an association representative but he said damage claims have risen in recent years. It was estimated that gypsum wallboard comprised possibly half of the 188,794 carloads (5,641,336 tons) of all kinds of wallboard originated on Class I roads in 1955.

1956 Was Best Year in Its History, Says C&O

The Chesapeake & Ohio in 1956 earned more for its services, paid more wages and set a higher dividend rate than ever before. Also, the road's recently released annual report says, the \$90,000,000 spent by the C&O last year was "the greatest amount spent in one year to better the railroad."

Net income in 1956 was \$67,000,000, a 15% gain over 1955's record \$58,000,000. Total revenues were \$419,000,000, a \$39,000,000 increase over the 1955 record year.

Featured in the 1956 annual report is a pictorial supplement which contains a photographic report on the C&O as seen by two "typical" stockholders, who were taken on a tour of the railroad. The 24-page supplement, which contains 45 photographs of scenes and developments on the C&O, describes and illustrates what the stockholders saw.

Santa Fe to Start Scholarship Plan

Beginning this year, the Santa Fe Foundation will award five four-year scholarships annually to sons and daughters of the railroad's employees.

The non-profit corporation will announce winners following a nationwide search for exceptional students conducted by the National Merit Scholarship Corporation each year.

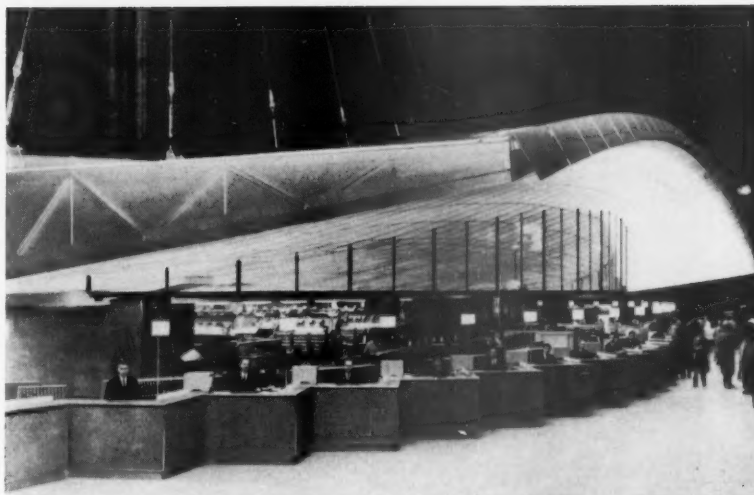
Scholarship winners may attend the college or university of their choice, and will receive stipends based on individual need. The awards are made "solely on the basis of ability to profit from a college education."

L&NE Subsidiary Takes to the Waves

A Lehigh & New England subsidiary has purchased six ships for high seas operations.

The subsidiary, Penn Navigation Company, will operate the vessels out of New York City completely apart from the operation of the railroad. The purchase, which a railroad spokesman called "an investment in ocean transport," was from the Pan Oceanic Navigation Corporation.

It is not contemplated that there will be any link between L&NE rail freight and that of the ships—five Liberty-type cargo vessels, and one tanker. A spokesman said that while it is "conceivable" the vessels could sometime be engaged in export coal traffic they were not meant to.



PRR's Customers Can See What They Buy

A new electronic ticket sales and service bureau (above), which includes the world's largest closed-circuit television installation, opened for business in New York City's Pennsylvania Station at midnight, February 22. The TV in-

stallation enables customers and ticket agents to see immediately what space is available. Average time for purchasing a ticket and reservation at the modernized bureau is said to be two minutes.

Genet Sees Rails Left in Bus Dust

The president of the Greyhound Corporation balanced a chip on his shoulder at a Philadelphia press conference last week and challenged the railroads to knock it off.

Ex-Chesapeake & Ohio traffic vice-president Arthur S. Genet promised that buses are "going to run the railroads out of the intercity passenger business."

It won't make any difference, he avowed, whether the railroads get their sought-after rate increases or not. Nor will it do the railroads any good to continue tests with such equipment as the "Aerotrain," the

"Talgos," the Budd lightweight entries or the "Xplorer."

"They are just not able to compete," the erstwhile railroader opined during the dedication of transportation facilities at the \$100,000,000 Penn Center. Railroads, Mr. Genet said, are just "throwing good capital after bad" in expenditures for new equipment—because "they will not be able to keep in the passenger business any longer than the next 10 years."

Reasons for Mr. Genet's attitude? He says the "advent" of government-built superhighways has boomed the bus business and will help it grow.

Ex Parte 206 Rate Pleas Consolidated

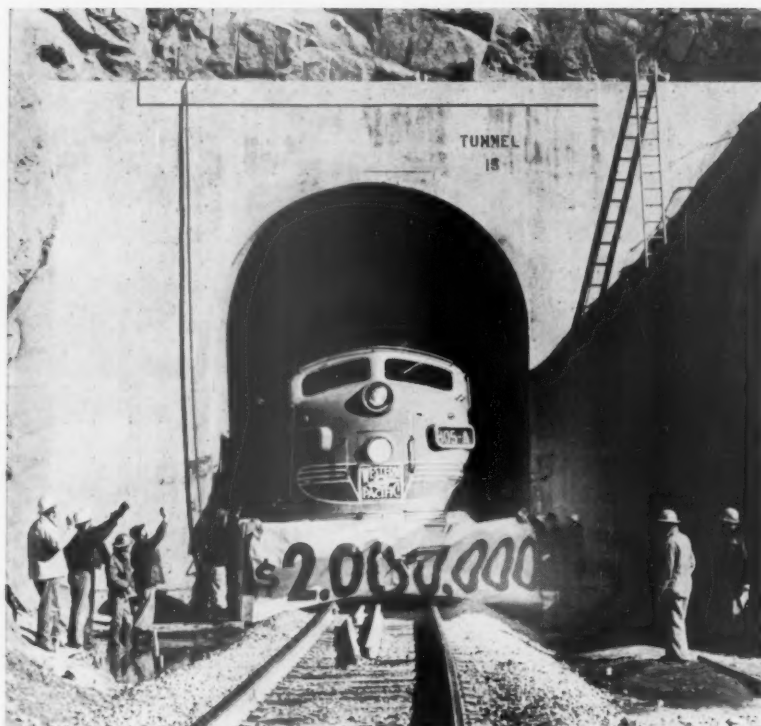
The petition of Southern-territory railroads to bring their Ex Parte 206 freight-rate increase up to 15% has been consolidated with the like petition of eastern and western roads for authority to convert their interim hike into a 22% advance.

The consolidation was ordered by the Interstate Commerce Commission on February 19. The order granted more time for filing verified statements in opposition to the increases, but otherwise kept remaining proceedings on the schedule originally set for the East-West case.

Hearings will still be held at Wash-

ington April 8 and at San Francisco April 17, and they will embrace the southern case. Oral argument is still scheduled for Washington May 1, which is also the due date for filing briefs.

The postponement in the time for filing verified statements in opposition is from March 16 to March 25. Also postponed, from March 30 to April 1, is the due date for reply verified statements. February 25 is the due date for filing by the southern roads of verified statements in support of their plea. The supporting statements of eastern and western roads were



WP Opens New Feather River Canyon Tunnel

First train through the Western Pacific's new \$2 million Feather River Canyon tunnel was the westbound California "Zephyr" (above). Bypassing a troublesome landslide area, the new tunnel is complete with lining and continuous welded 119-lb rail. "We did

not like to put \$2 million into a new hole in the ground," remarked WP president F. B. Whitman, "but we consider the money well spent to avoid future tie-ups and resulting delays to Western Pacific shippers and passengers."

filed with the commission on February 1.

The commission's order also modified previously promulgated rules of practice for the case to permit oral testimony in rebuttal, and oral testimony of witnesses testifying under subpoena. Except in those respects, and in the grant of more time for verified statements in opposition, the order denied the petition filed recently by the National Industrial Traffic League and like pleas of other shipper interests and government agencies.

The NIT League had asked the commission to lengthen the case's schedule. The present set-up, it said, does not allow time for "fair and full

hearing and mature decision."

The interim increases which eastern and western roads want to bring up to 22% are those which became effective December 28, 1956. Subject to exceptions and holdowns, they were 7% in the East and 5% in the West and interterritorially (Railway Age, Dec. 24, 1956, p. 6).

The interim hike which the southern roads want to bring up to 15% was 5%, with exceptions (Railway Age, Feb. 11, p. 14). It became effective February 23. All southern lines were parties to interim-relief plea, but the Southern and the Piedmont & Northern have not joined in the 15% petition.

'Juice' Ship Squeezes Rail Traffic

Docking last week at special facilities in Whitestone, New York City, an 8,000-ton cargo ship laden with 650,000 gallons of fresh orange juice probably spelled *finis* for another source of railroad traffic.

The "S.S. Tropicana," owned by Fruit Industries, Inc. is scheduled to put into port every nine days to discharge its cargo into refrigerated tanks prior to "bottling" in waxed paper containers. The vessel is loaded

at Cocoa, Fla., with fresh, refrigerated juice. Freshness is retained, the company reports, throughout the 2 1/3-day voyage because the juice is sealed in insulated, vacuum-tight, stainless steel containers welded within the ship's hold.

Indicative of the new transportation development's effect on rail traffic is that the Pennsylvania last year handled some 700 carloads of Fruit Industries juice—already in the paper containers—for distribution in the New York City area. This traffic is being diverted to the ship movement, which anticipates adding more stops at East coast ports.

A. J. Rossi, president of the company, said the cost of one shipload movement, including amortization of the ship and plant facilities, was \$15,000.

Barriger Says Price Is Mail Dispute Issue

Not service but rates is the issue which caused the Post Office Department to switch from railroad to motor carrier on its Pittsburgh-Cleveland mail traffic.

That's the charge of Pittsburgh & Lake Erie President John W. Barriger. He makes it in a letter to Assistant Postmaster General E. G. Siedle, rebutting statements made by the mail official with regard to the diversion (Railway Age, Feb. 11, p. 10).

Mr. Siedle had said that train schedules made next-day mail deliveries between Pittsburgh and Cleveland impossible.

Mr. Barriger, however, states that no complaint on service was ever voiced by the POD and no improvements were ever asked. Further, he declares, files accumulated before he joined the P&LE showed that the Post Office had threatened the railroads with loss of the mail contracts if they would not bring their rates below those determined as fair and reasonable by the ICC. He warned that the POD should not rely too heavily on "missionary rates" offered by truckers to capture the traffic and indicated doubts that truckers could maintain desired schedules on congested highways at lawful speeds.

Mr. Barriger charged the Post Office with using its power to divert traffic "to force the rail carriers in this area" to provide mail service at less than the ICC-approved rates. "It was indicated very definitely" by postal representatives, Mr. Barriger declared, that "a small concession, even a 'token' one, would be all that was necessary to hold the mail on the railroad."

MARKET OUTLOOK THIS WEEK

Carloadings Up 1.6% in Week

Loadings of revenue freight in the week ended February 16 totaled 675,966 cars, the Association of American Railroads announced on February 21. This was an increase of 10,715 cars, or 1.6%, compared with the previous week; a decrease of 22,353 cars, or 3.2%, compared with the corresponding week last year; and an increase of 25,718 cars, or 4.0%, compared with the equivalent 1955 week.

Loadings of revenue freight for the week ended February 9 totaled 665,251 cars; the summary, compiled by the Car Service Division, AAR, follows:

| REVENUE FREIGHT CAR LOADINGS For the week ended Saturday, February 9 | | | |
|---|-----------|-----------|-----------|
| District | 1957 | 1956 | 1955 |
| Eastern | 117,678 | 119,030 | 112,039 |
| Alleghany | 133,553 | 140,775 | 120,556 |
| Poconantas | 57,518 | 58,994 | 49,549 |
| Southern | 120,294 | 126,870 | 123,075 |
| Northwestern | 72,692 | 74,713 | 70,168 |
| Central Western | 111,340 | 111,764 | 109,006 |
| Southwestern .. | 52,176 | 52,182 | 54,395 |
| Total Western Districts | 236,208 | 238,659 | 233,569 |
| Total All Roads | 665,251 | 684,328 | 638,788 |
| Commodities: | | | |
| Grain and grain products | 51,396 | 45,302 | 43,672 |
| Livestock | 5,407 | 6,418 | 5,957 |
| Coal | 134,025 | 141,192 | 126,486 |
| Coke | 13,938 | 13,745 | 10,265 |
| Forest Products | 38,395 | 41,188 | 42,614 |
| Ore | 21,679 | 21,247 | 13,563 |
| Merchandise | | | |
| i.c.l. | 56,574 | 60,938 | 62,217 |
| Miscellaneous .. | 343,837 | 354,298 | 335,014 |
| February 9 | 665,251 | 684,328 | 638,788 |
| February 2 | 647,972 | 680,989 | 635,779 |
| January 26 | 665,745 | 691,850 | 637,116 |
| January 19 | 657,269 | 699,286 | 630,351 |
| January 12 | 680,766 | 710,338 | 639,833 |
| Cumulative total 6 weeks | 3,878,522 | 4,078,090 | 3,779,219 |

IN CANADA.—Carloadings for the seven day period ended February 7 totaled 77,182 cars compared with 116,889 cars for the previous 10 day period, according to the Dominion Bureau of Statistics.

| | Revenue Cars Loaded | Total Cars Rec'd from Connections |
|--------------------|---------------------|-----------------------------------|
| Totals for Canada: | | |
| Feb. 7, 1957 | 77,182 | 35,347 |
| Feb. 7, 1956 | 77,044 | 35,147 |
| Cumulative Totals: | | |
| Feb. 7, 1957 | 367,181 | 162,869 |
| Feb. 7, 1956 | 397,030 | 182,428 |

New Equipment

FREIGHT-TRAIN CARS

► **Burlington.**—Ordered 1,985 cars (including 85 for the Colorado & Southern), from its own shops for delivery next year; cost \$15,220,000; included are 1,525 50-ton box cars (25 for the C&S), 410 70-ton covered hopper cars (60 for the C&S), and 50 70-ton gondola cars.

► **Texas & Pacific.**—Ordered 230 cars from its own shops for construction next year; included are 75 50-ton box cars, 25 50-ton refrigerator cars, 100 70-ton gondola cars and 30 70-ton covered hopper cars.

► **Union Tank Car Co.**—Ordered 918 tank cars from its own shops for delivery this year and next; included are 800 11,000-gal., 56 10,600-gal., 50 10,000-gal., one 6,000-gal. and 11 4,000-gal. cars.

► **Wilson Car Lines.**—Ordered 200 40-ton refrigerator cars, Pacific Car & Foundry; estimated cost \$2,645,000; delivery expected fourth quarter 1957.

LOCOMOTIVES

► **Lackawanna.**—Ordered eight 1,200-hp diesel-electric yard-switching units, Electro-Motive; approximate cost \$1,000,000; delivery scheduled for next fall.

► **Union Pacific.**—Ordered second group of 15 8,500-hp gas turbine-electric units, General Electric, for freight service; approximate cost \$15,000,000; delivery expected to begin early in 1958; delivery of first group of 15 such units, ordered by UP late in 1955 (Railway Age, Dec. 5, 1955, p. 9), is scheduled to begin next July.

PASSENGER-TRAIN CARS

► **Northern Pacific.**—Ordered six dining cars and two additional Vista Dome coaches for the "North Coast Limited," Budd Company; cost \$2,120,000; 1957 delivery; lightweight diners now in use on "North Coast Limited" will be transferred to NP's second trans-continental train, the "Mainstreeter."

► **Santa Fe.**—Ordered 15 baggage cars, Budd Company, for delivery in January 1958.

SPECIAL

► **Argentina to Buy Transport Equipment Here.**—Loan agreement for \$56,155,000 with Argentina to assist that country in purchase of transportation equipment in the United States was signed recently at the Export-Import Bank of Washington; purchases will include 150 diesel locomotives, freight cars, ballast cars, signal equipment, rails, repair-shop equipment, tug boats and highway equipment; loan will be repaid in 28 approximately equal successive semiannual installments, beginning 3½ to 4 years from date of first withdrawal.



'Golden Spike' Ceremony Held in Arkansas

Completion of a 20-mile stretch of new railroad linking the De Queen & Eastern and the Missouri Pacific was celebrated recently at Perkins, Ark. F. H. Dierks (left), president of the DQ&E, and Paul J. Neff, MP president, are shown congratulating each other at the ceremony. Each road built about half

the new trackage, first new track to be built in Arkansas in several years. Much of the tonnage on the new line, it is expected, will be pulpwood and paper chips for a new kraft paper mill being built at Pine Bluff, Ark., for Dierks Forests, Inc., which owns the DQ&E.

1956 Net Put at \$874 Million

Class I railroads last year had an estimated net income, after interest and rentals, of \$874 million. That was \$41 million less than the 1955 net of \$915 million.

The latest monthly compilation by the Bureau of Railway Economics, AAR, also showed that last year's net railway operating income, before interest and rentals, was \$1,068,343,682, down \$60½ million from the 1955 figure of \$1,128,867,391.

December 1956 figures showed estimated net income of \$96 million, compared with \$87 million in December 1954. Net railway operating income for last December was \$85,813,234, compared with \$78,580,343.

The 1956 rate of return averaged 3.95%, compared with 4.23% in 1955. Twelve Class I roads failed to earn interest and rentals in 1956.

CLASS I RAILROADS—UNITED STATES Twelve Months Ended December 31

| | 1956 | 1955 |
|--|------------------|------------------|
| Total operating revenues | \$10,550,936,013 | \$10,106,761,916 |
| Total operating expenses | 8,108,273,368 | 7,641,369,403 |
| Operating ratio | | |
| —per cent | 76.85 | 75.61 |
| Taxes | 1,121,323,051 | 1,081,420,746 |
| Net railway operating income (Earnings before charges) | 1,068,343,682 | 1,128,867,391 |
| Net income, after charges (estimated) | 874,000,000 | 915,000,000 |

Month of December

| | 1956 | 1955 |
|--|---------------|---------------|
| Total operating revenues | \$871,048,639 | \$858,220,044 |
| Total operating expenses | 689,299,004 | 694,763,381 |
| Operating ratio | | |
| —per cent | 79.13 | 80.95 |
| Taxes | 74,271,809 | 62,769,800 |
| Net railway operating income (Earnings before charges) | 85,813,234 | 78,580,343 |
| Net income, after charges (estimated) | 96,000,000 | 87,000,000 |

Loomis Would Outlaw Strikes

A top rail labor negotiator has put new emphasis on the industry's dissatisfaction with the Railway Labor Act.

Daniel P. Loomis, chairman of the Association of Western Railways, told the Western Railway Club at Chicago recently that a new element should be injected into settlement of labor disputes: compulsory arbitration.

After three years of "soul-searching," Mr. Loomis said, railroads have "reluctantly" concluded that "present laws should be amended to provide for final and binding adjudication of disputes concerning rates of pay, rules or working conditions; that strikes and lock-outs in the railroad industry should be outlawed; and that an orderly method of quasi-judicial

procedure should be written into the law to provide for settlement of disputes which are not adjusted either through negotiation, mediation or voluntary arbitration."

Mr. Loomis is chairman of the committee which deals with labor matters at the national level for western lines.

In trying to settle a dispute under present law, the National Mediation Board can attempt to induce the parties to arbitrate, Mr. Loomis said. Nearly always, though, the parties have disagreed either on whether—or what—to arbitrate.

Mr. Loomis called "unrealistic" the fact that railway labor is represented by more than 20 unions which are frequently in competition with each other in trying to gain greater benefits. "If the wage structure needs to be revised," he said, "the whole structure should be considered in one proceeding with all the unions represented. It simply cannot be done on a piecemeal basis."

Truckers Control 'Plan 1' Future, Barngrove Says

The future of common carrier piggybacking will be determined by truckers, not by the railroads, says J. L. Barngrove, Jr., Lackawanna general traffic manager.

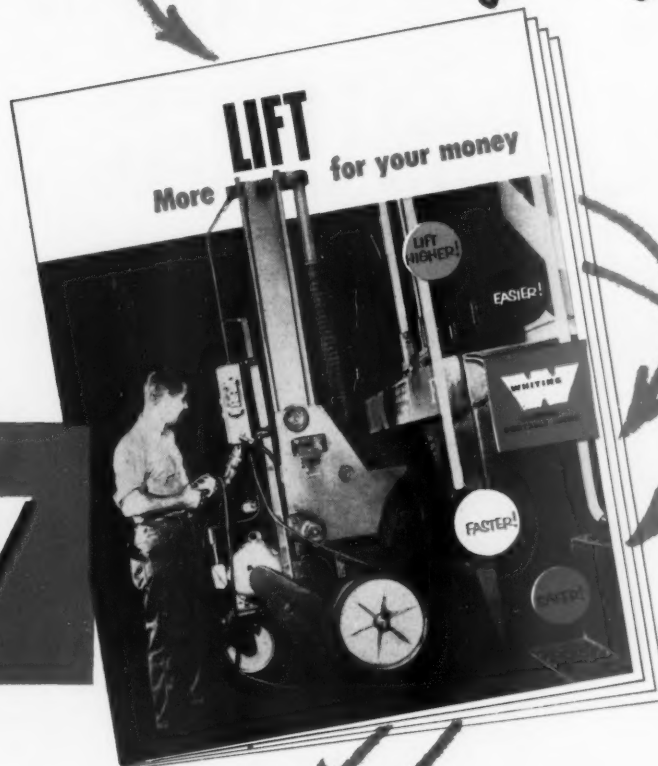
He told the New England Traffic Club at Boston recently that truck companies' "ability to secure traffic of the longer haul type and their willingness or ability to work out satisfactory arrangements with railroads" will be the governing factors.

By contrast, he said, the growth of rail-operated TOFC "seems assured by the acceptance shippers have accorded it as evidenced by its continued growth and extension into additional areas."

Mr. Barngrove, whose railroad offers only all-rail piggyback service, pointed out that "the shipper's contact is with the motor carrier and he has no contact with the railroad" under the common carrier (Plan I) TOFC form. A shipper, he went on, need never know that his consignment ever moved via rail under this plan. Common carrier piggybacking, he said, is merely "a new operating method for already existing motor carrier service and is not a new transportation service for shippers."

"The good points, or advantages of rail piggyback service are not brought out to the shippers by the motor carriers. There is no reason for them to do so," Mr. Barngrove stated. He commented that growth of common (Continued on page 26)

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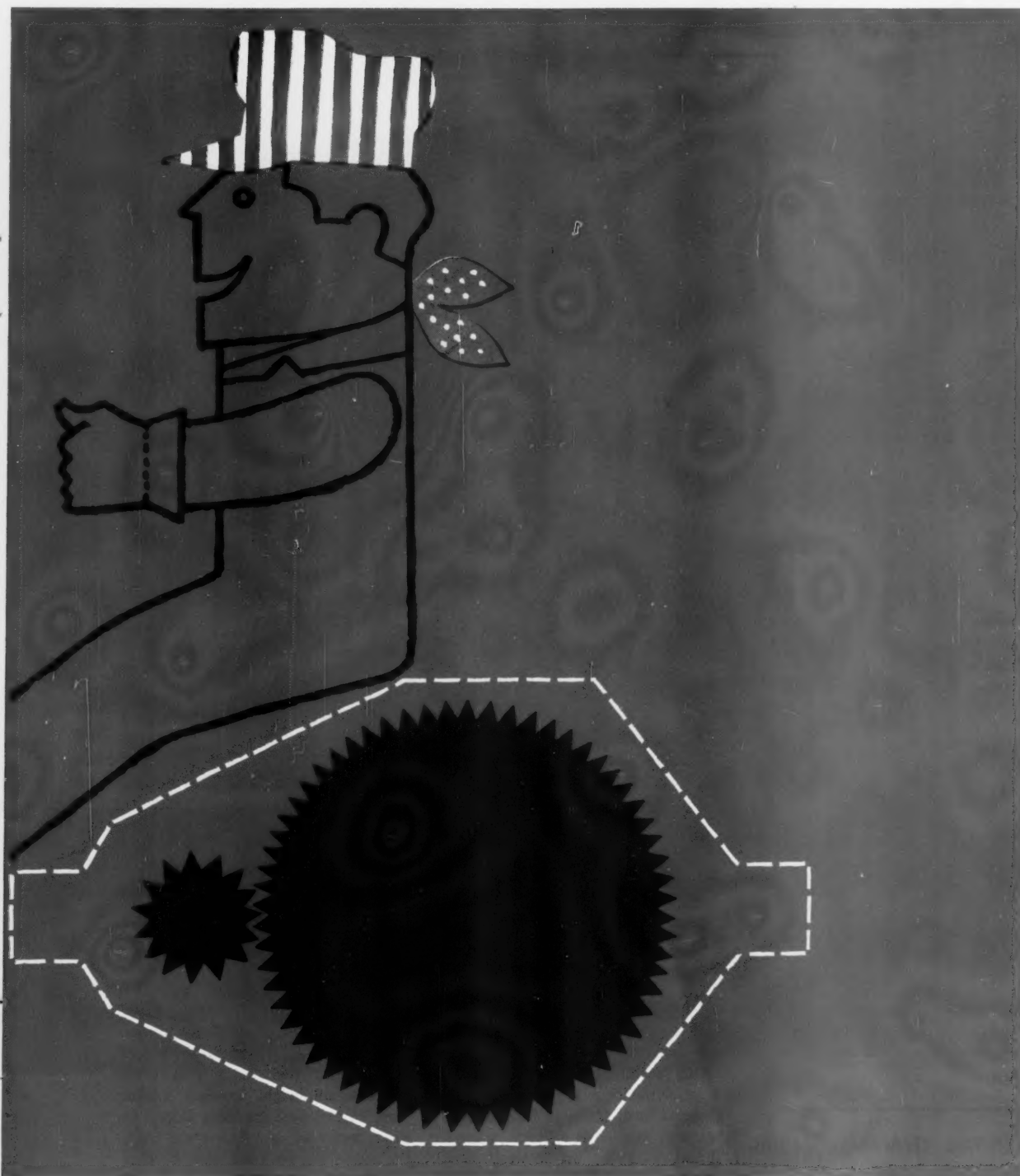
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Anti-Leakage Characteristics: maintains consistency through full range of operating temperatures, resulting in a minimum of drippage on ties, pits and station platforms.

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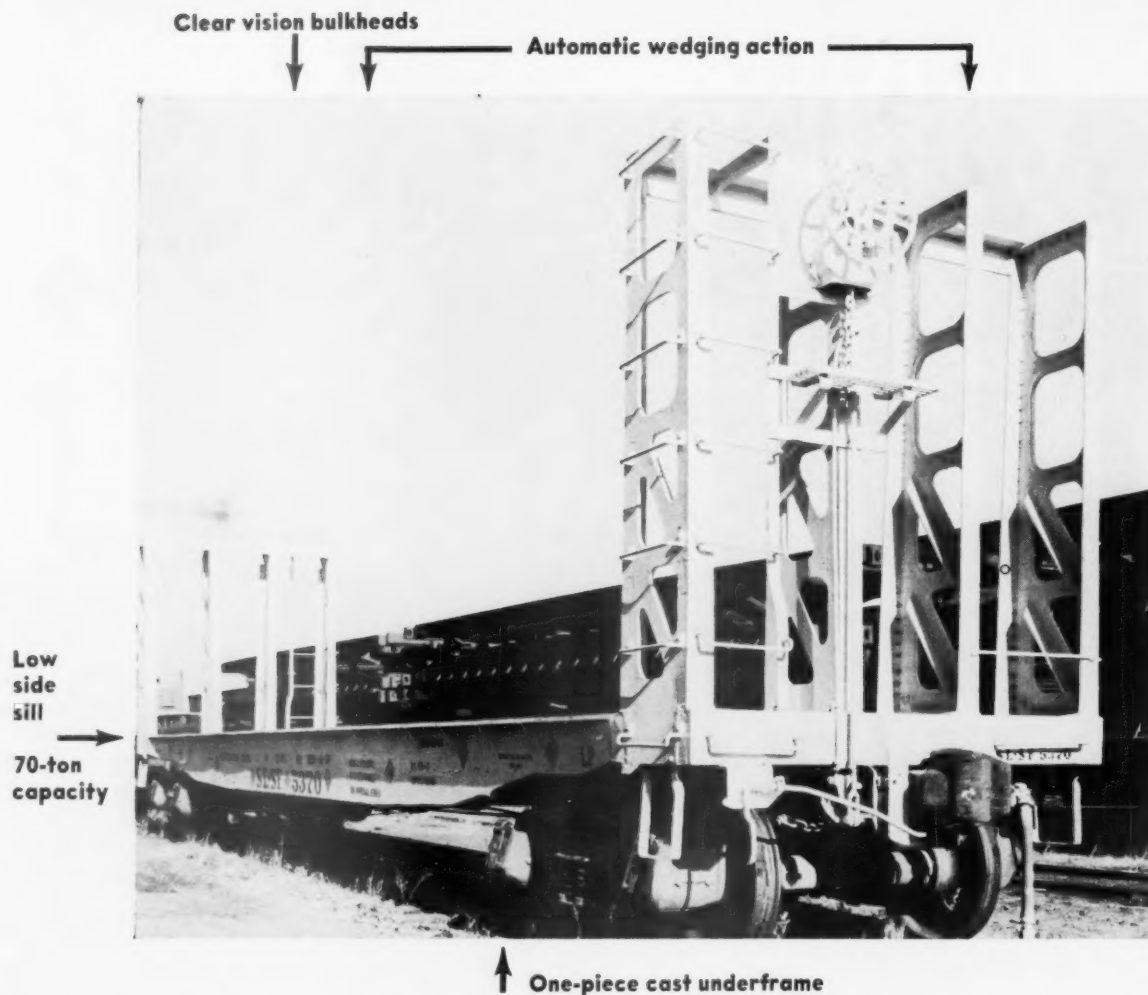
Excellent Structure Stability: minimizes failures due to dry gears because of excessive gear case leakage.

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For complete information and technical assistance in the use of new Esso Arapen Gear Lubricant, call your local Esso office or write: Esso Standard Oil Co., Railroad Sales Div., 15 W. 51st St., N.Y. 19, N.Y.



RAILROAD PRODUCTS



BIGGER SIZE, NEW DESIGN LETS . . .

Five Cars Replace Seven

The Frisco is now assembling 150 70-ton pulpwood cars, with one-piece Commonwealth cast steel underframes

PRINCIPAL DIMENSIONS OF 70-TON CARS

| | |
|---|----------|
| Inside length, top, ft-in. | 45-6 |
| Inside length, bottom, ft-in. | 45-0 |
| Length over strikers, ft-in. | 50-3½ |
| Length over truck centers, ft-in. | 39-3½ |
| Width, ft-in. | 8-8 |
| Height, end posts, ft-in. | 8-6 |
| Height from rail to side of car, ft-in. | 4-0½ |
| Capacity, lb | 140,000 |
| Capacity, based on 5-ft logs | 30 cords |

and interlocking upright bulkheads. The increased capacity allows shorter trains to handle the same tonnage, reducing switching costs and siding and yard trackage requirements.

General Steel Castings Corporation developed this design, after several railroads indicated an interest in a 70-ton car, five of which can handle the same load as seven 50-ton cars. The paper companies now prefer to use collecting points at which the pulpwood logs are gathered from the field. These points have a central storage yard where pulpwood cars are loaded.

The basic principles of General Steel's original car, introduced in 1950, of which several thousand have

been built, are incorporated in this new design. They provide for a corrosion-resistant, one-piece cast steel underframe, interlocking end posts, low side sill height for easy loading from trucks, and car floor sloped toward center of car. Automatic wedging action has been provided by making the distance between the upright end posts greater at the top than at the bottom.

Cored openings are placed in the top of the box-section center sill for drainage and exit of loose bark from the empty car to provide a clean floor. The ends of the car are left open for clear vision through the posts so machine and crane operators

(Continued on page 24)

For Greatest Underframe Strength

**Maximum
Capacity**

**Maximum
Revenue**

New

FRISCO

70-Ton Pulpwood Cars
Have Commonwealth
One-piece Underframes
and Interlocking
Upright Bulkheads

250 now building or on
order for the St. Louis-
San Francisco Railway

Again Frisco specifies Commonwealth Underframes for greater payload . . . more round trips per month . . . lowest upkeep costs and maximum revenue. The larger capacity of these well designed 70-ton cars—approximately 30 cords—is made possible by the greater strength at less weight of Commonwealth one-piece cast

steel Underframes and interlocking bulkheads.

What's more, corrosion is no problem, and these cars provide longer life, continuous availability with Underframes that are *maintenance-free*. If you aren't realizing the profitable investment Commonwealth Underframes offer, it will pay to investigate now.

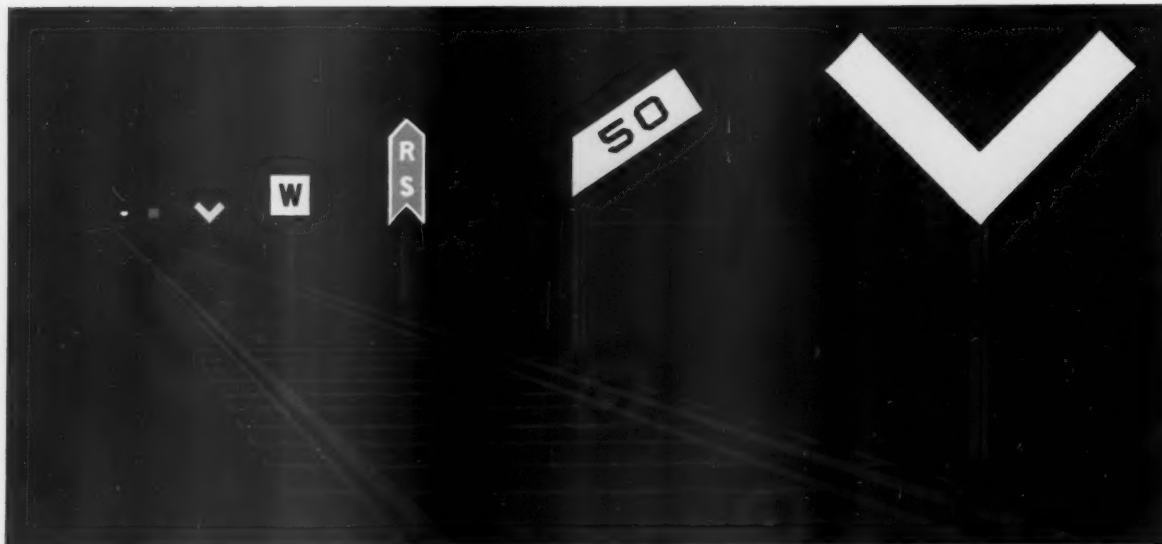


GENERAL STEEL CASTINGS

GRANITE CITY, ILL. • EDDYSTONE, PA. • AVONMORE, PA.



How Reflective Train Control system works for operational safety



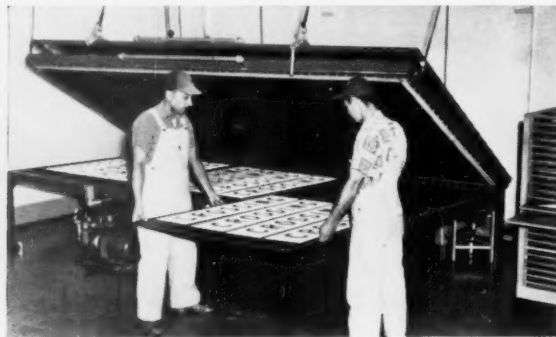
Control signs reflectorized with "Scotchlite" Reflective Sheeting provide 24-hour-a-day operational safety and maintenance economy. This signing system, called Reflective Train Control (RTC), makes the full color, shape and legend of each roadway sign clearly visible by night as well as by day in any kind of

weather. Modern, economical train control like this gives the engineer a wide margin of safety when he needs it most.

Signs of vivid, durable "Scotchlite" Sheeting reflect their message in each approaching headlamp beam . . . can be seen from ½ mile away at night.



Switch targets of "Scotchlite" Sheeting are a low cost way to prevent accidents caused by vandalism or neglected lamps. RTC system signs and cross bucks, too, give you 24-hour-a-day safety *plus* much longer life than ordinary painted panels.



Economy of Central Sign Shop production of reflective train control signs comes from making signs in one shop, using only 1 to 3 men. Further economies result from elimination of field painting and maintenance.

Reflective Train Control with signs of "Scotchlite" Sheeting gives you increased safety with lower maintenance costs. Get the facts on RTC for your road now. Write 3M Company, Dept. FQ-2257, St. Paul, Minnesota.

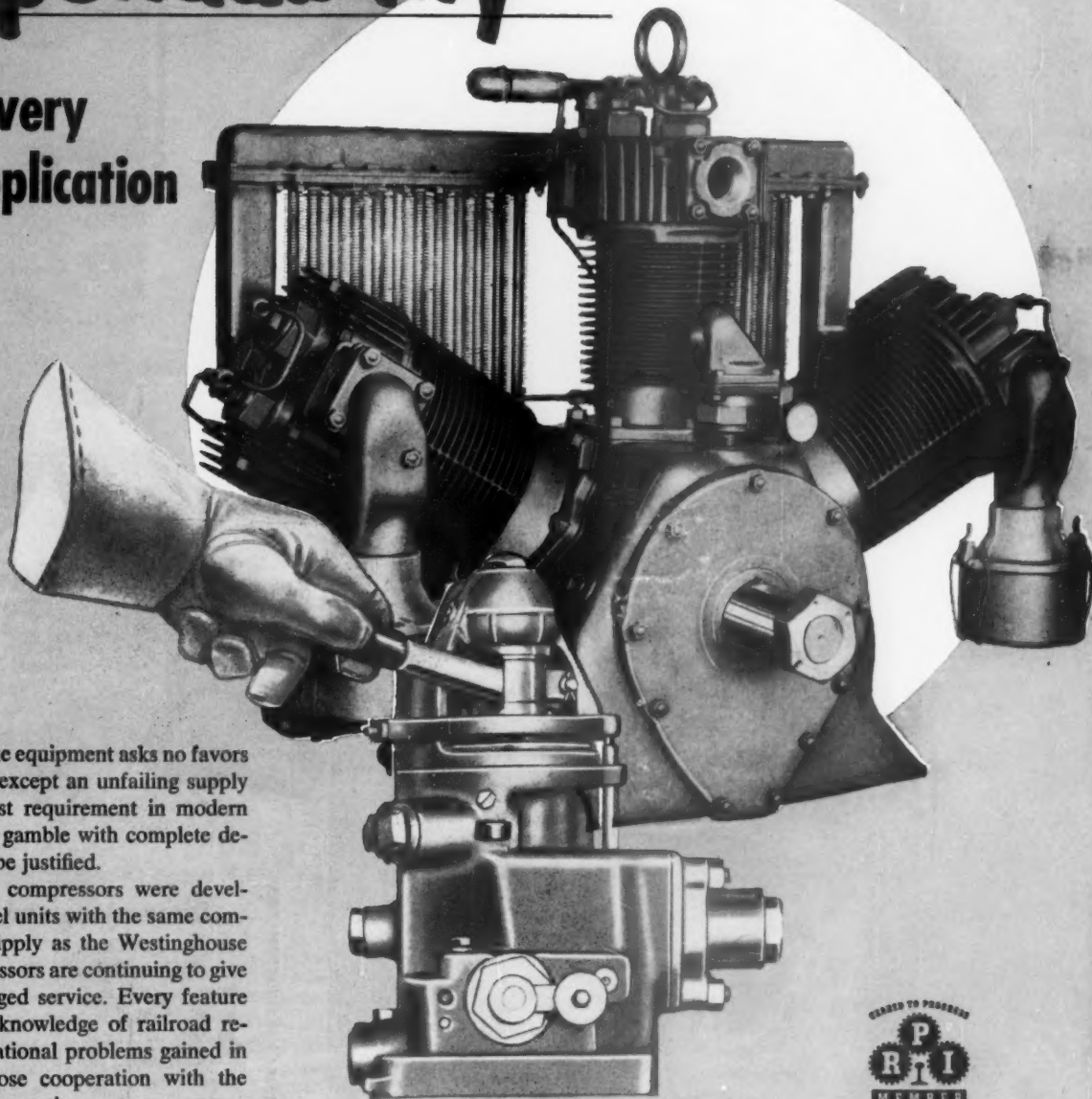
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dependability

behind every
brake application



Westinghouse Brake equipment asks no favors on any assignment—except an unfailing supply of air. That's the first requirement in modern train control, and no gamble with complete dependability can ever be justified.

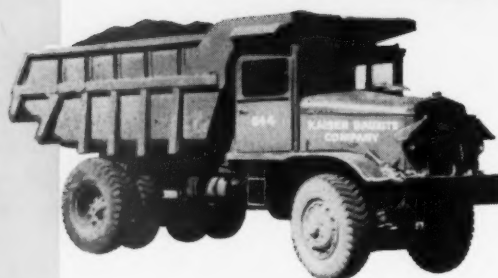
Westinghouse CD compressors were developed to provide Diesel units with the same completely reliable air supply as the Westinghouse Steam Driven compressors are continuing to give through years of rugged service. Every feature reflects the intimate knowledge of railroad requirements and operational problems gained in over 80 years of close cooperation with the nation's leading transportation system . . .

1. Radiator-type intercooler between high pressure and low pressure cylinders reduces temperature of discharge air and increases efficiency.
2. Full-pressure type lubrication system maintains even, constant flow of filtered oil to connecting rod crankshaft bearings and wrist-pin bearings.
3. Throw-off of oil from connecting rod bearings lubricates cylinder wall and also main crankshaft ball bearings.



**Westinghouse Air Brake
COMPANY**

AIR BRAKE DIVISION  WILMERDING, PA.



Dimensions and Capacities

| | |
|-----------------------------------|---------|
| Length, coupled, ft.-in. | 40-9 |
| Length, inside, ft.-in. | 36-5 |
| Width, inside, ft.-in. | 9-6½ |
| Height, inside, ft.-in. | 6-6 |
| Capacity, level, cu. ft. | 2,233 |
| Capacity, heaped, cu. ft. | 2,630 |
| Capacity, lb. | 173,300 |
| Weight, empty, lb. | 36,700 |



These strong, lightweight gondola cars made of Kaiser Aluminum's new high strength welding alloy 5086 were built by Magor Car Corporation, Clifton, New Jersey.

ONE MORE TRUCKLOAD PER CAR ...14 TONS MORE PAYLOAD

with new all-welded gondola car bodies made of Kaiser Aluminum

A fleet of thirty-five gleaming new railroad gondola cars—the first ever built in the United States with all-welded aluminum bodies—is reducing costs at the Kaiser Bauxite Company's mining operation in Jamaica.

Similar steel cars carry five 14-ton truckloads of bauxite. The new aluminum gondolas, because of their light weight and unique construction, carry *six* 14 ton truckloads—an increase in loading of 14 tons or 20%.

Highly corrosion-resistant, the cars require no painting

even though they are operated in a corrosive marine atmosphere. Strong and durable, they resist the effect of abrasive bauxite and the heavy strain imposed by rotary dumping.

These strong, lightweight gondolas are another example of how aluminum can serve the railroad industry.

We'll be glad to work with you as "idea partners", sharing with you our aluminum fabricating knowledge, engineering skill, cost analysis, design assistance.

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INDUSTRIAL TV

FOR RAILROADS ...via Graybar

Industrial Television (closed-circuit TV) is one of the railroad industry's most promising tools. To date, it has been successfully employed to (1) speed up work in classification yards by checking car numbers of inbound trains. (2) to keep a watchful eye on important switching points from a central office. ITV can be employed anywhere that inspection and control is needed or should be supplemented.

The Diamond "400" UtiliVue camera, shown, is manufactured by the famous Diamond Power Specialty Corporation. The equipment is simple to install, maintain and operate. No specially trained operators are required. It can be used with a regular TV receiver and/or monitor. An inexpensive coaxial cable transmits a quality picture equal to that of most commercial TV broadcasts. Servicing can be done by railroad personnel using the complete service manuals, any competent TV repair shop, or by contract through a nationally known organization, if desired.

Everything you need for a complete Diamond ITV installation is available from one responsible source—Graybar. Here, as in Outdoor Construction, Wiring, Lighting and Communications, a Graybar Specialist is at your service



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"GRAYBAR GUIDE TO INDUSTRIAL TV" is a 64-page catalog containing data and descriptions of the equipment needed for an industrial television system. Check your Handbook for your nearby Graybar Representative or write: Graybar Electric Co., Inc., 420 Lexington Avenue, New York 17, N. Y.

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100,000 electrical items
are distributed throughout
the nation



OFFICES AND WAREHOUSES IN OVER 130 PRINCIPAL CITIES

via
Graybar

(Continued from page 18)

can see the position of pulpwood in the car.

The floor plates are welded to the center sill and side sill by continuous automatic welding. One hundred more of these cars will be assembled at the Frisco's Yale, Tenn., car shops in 1957.

The 70-ton car is equipped with Barber S-2A trucks, with 2½-in. standard travel coil springs. The trucks have 6 by 11-in. journals, R-S journal stops and Magnus broached bearings with depressed backs. The truck wheel base is 5 ft 10 in., and they have 33-in. one wear wrought steel wheels. They are fitted with Stucki side bearings and Davis brake beams with Diamond "S" type brake shoes.

Cardwell - Westinghouse NY-11-F draft gear is used with Type E couplers, Standard railway coupler centering device with height adjustment, and Y-40 vertical coupler yokes.

New York Air Brake schedule AB-10 brake equipment, with brake cylinder release valve, Type QRR, is em-

ACL Orders Pulpwood Cars, Too

Production has started at the St. Charles, Mo., plant of American Car & Foundry Division, ACF Industries, Inc., on 800 70-ton pulpwood cars for the Atlantic Coast Line. These cars, like those of the Frisco, are equipped with GSCC cast underframes and interlocking bulkheads, with a capacity of 30 cords. Regular delivery will start this month, at the expected rate of 160 per month, with completion of order by June.

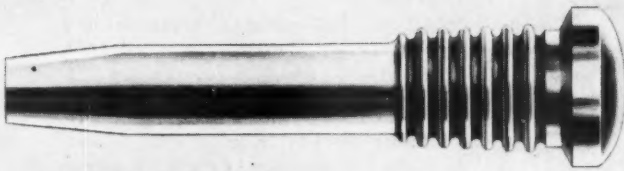
ployed, as is the Amweld slack adjuster and Ajax non-spin hand brake.

Frisco officers expect only normal maintenance on the trucks, draft gear, couplers and safety appliances, and no maintenance on the cast steel underframe and end posts, other than wreck or fire damage. They do not believe rusting will be a major factor since, as the manufacturer points out from years of service experience, the underframe and posts are highly resistant to corrosion.

The Frisco is the first of four railroads ordering this new 70-ton design and a total of over 1,200 cars are now on order.

ALL ALONG THE LINE...

THIS RACOR TEAM EXTENDS TIE LIFE ...REDUCES SPIKING COSTS



THE RACOR STUD (Patented)

Securely driven becomes integral with tie plate and restricts lateral movement effectively. This adds up to greatly reduced tie abrasion, a reduction of spike killed ties and a minimum of tie splitting. In addition to this extension of tie life, Racor studs pay off handsomely in reduced track maintenance. Because these sturdy anchor studs maintain better line and gage, they defer tie replacement, and they reduce labor costs. Many tests have shown a reduction of 50% in tie wear. Put Racor studs to work on your road. They'll pay big dividends all along the line.

THE RACOR DUAL DRIVER DD-4

(Patent applied for)

The DD-4 will drive Racor studs in the anchor position of tie plates and will effect substantial savings in line spiking costs. Studs or spikes are distributed in tie plate holes by hand. The DD-4 drives two studs or spikes simultaneously, then resets automatically for the next two. It has the advantage of two powerful pneumatic hammers, yet one man can drive twice as many studs or spikes without relief or fatigue. Take advantage of these time and cost-saving benefits. The DD-4 will prove well worth your while all along the line.

Write today for prices and complete descriptive literature.



AMERICAN
Brake Shoe
COMPANY

RAILROAD PRODUCTS DIVISION

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Two New Guides for Higher In-and-Out Efficiency

Be sure you have these new, complete door guides — your keys to lowest costs and highest efficiency wherever traffic or equipment moves in and out of buildings. You get full data on Kinnear Steel Rolling Doors with the famous *Kinnear-originated* interlocking slat curtain. Also details on sectional-type Kinnear Rol-Top Doors (wood or all-steel) . . . Akbar Rolling Fire Doors, for positive automatic protection in case of fire . . . Kinnear Rolling Grilles (block passage but not light, air, vision, or sound). *Write today for your free copies of these new Kinnear Door books. No obligation!*

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FACTORIES: 2020-40 Fields Ave., Columbus 16, Ohio
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Offices and Agents in All Principal Cities



(Continued from page 14)

carrier TOFC may be limited by trucker-labor agreements which relegate piggyback operations to an "overflow or weekend basis" and the willingness of truckers to pay an attractive share of their revenues to railroads moving their vehicles.

Backing up his statement with growth figures and noting that the Lackawanna's 1956 piggyback revenues averaged 2.3 cents per net ton mile (44% above the 1.6 cent all-traffic average), Mr. Barngrove said that all-rail (Plan II) TOFC "is here to stay."

What has made it attractive to shippers Mr. Barngrove asserted are such factors as these:

Speed and dependability; publicly listed tariffs; informative railroad tracing services; reduced damage-in-transit; elimination of chores performed by the shipper in freight car transportation, such as loading and unloading, car cleaning and lining.

Further, Mr. Barngrove stated, all-rail piggyback has proved economically sound for the railroads who have been able to fill a gap in their rail service while cutting into competing motor carrier traffic and boosting rail sales personnel's morale.

BLF&E-BLE Merger 'Urgent,' Says Gilbert

Another attempt to merge two large railroad operating unions got under way recently with a proposal by the Brotherhood of Locomotive Firemen & Enginemen that it amalgamate with the Brotherhood of Locomotive Engineers.

In a letter to Guy L. Brown, grand chief engineer of the BLE, R. E. Gilbert, BLF&E president said he had yet to hear "a truly valid reason why all enginemen should not be represented by one organization."

The issue "is urgent," Mr. Gilbert said to his membership. "The prospect is for individual productivity being doubled within the next ten years, and all of the problems which attend it." He said rail employment has decreased 40% since 1929-1930, while revenue ton miles increased 30%.

As of last week, the merger proposal was meeting with little success. Mr. Brown said he had "no choice but to reject President Gilbert's proposal." In 1956, Mr. Brown said, the BLE passed a resolution prohibiting mergers or affiliations. Only 12 of 400 delegates at the 1956 convention voted against it.

Similar resolutions had been passed at the 1950 and 1953 conventions, he recalled.



HELPING TO KEEP YOUR ROLLING STOCK SAFE

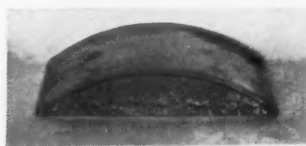
MECHANICAL DEPARTMENTS BENEFIT WITH ULTRASONIC REFLECTOSCOPE INSPECTION

Improve safety—reduce maintenance costs through in-place testing of diesel axles, wheels and car journals. Eliminate breakdowns—insure the most efficient utilization of rolling stock.

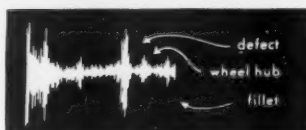
HOW REFLECTOSCOPE "FINDS THE TRUTH"



Sawed axle showing crack in dust guard fillet area found with Reflectoscope.



Axle section showing wheel seat defect revealed by Reflectoscope inspection.



A narrow beam of high frequency sound penetrates the test axle and is reflected from any defect in its path—immediately and accurately picturing the defect on the Reflectoscope Cathode Ray Tube. The Reflectoscope picture above shows an axle defect. The drawing of the axle shows the defect—just where the Reflectoscope indicated it would be.

Locating internal flaws before they cause failures is positive "low-premium" insurance against costly derailments... Reflectoscope inspection is the most accurate, economical method of locating defects. Ask your Sperry Sales Engineer to show you how the Reflectoscope fits into your maintenance program. Send for detailed information.



Diesel Axles

In a matter of minutes, axles can be ultrasonically tested "in-place" for defects.



Steel Car Wheels

Reflectoscope inspects for internal defects at point of manufacture and at point of service.



Freight Car Journals

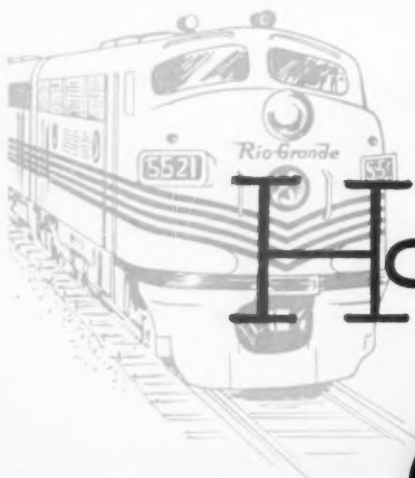
Sperry Test Car can ultrasonically test as many as 320 car journals daily. Operator drives car alongside track and, without leaving car, applies Reflectoscope search unit at end of journal.



SPERRY RAIL SERVICE
Division of Sperry Products, Inc. • Danbury, Connecticut
Leader in Nondestructive Testing



New York, N. Y., 110 East 42nd St. • Chicago, Ill., 80 East Jackson Blvd. • St. Louis, Mo., 818 Olive St.



I How another Rail

1060

Some of the most dramatic stories of modern railroading have come from the Research Laboratory of the Denver & Rio Grande Western Railroad. Research largely has been responsible for literally millions of dollars in operating savings on the Rio Grande and their operating ratios are among the lowest in the country.

The cooperating skills of Rio Grande Research immeasurably helped in developing the design of the new CF&I 106 pound rail section. The performance of the initial installation proved the superior characteristics of this CF&I section. The Rio Grande has pioneered the use of the 106 rail section just as they pioneered the first rail produced by CF&I in 1882.

CF&I

section was born...



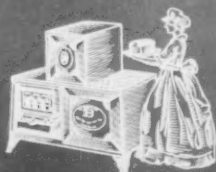
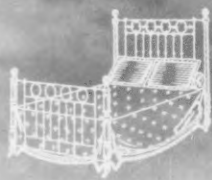
THE COLORADO FUEL AND IRON CORPORATION

Denver, Colorado



4034

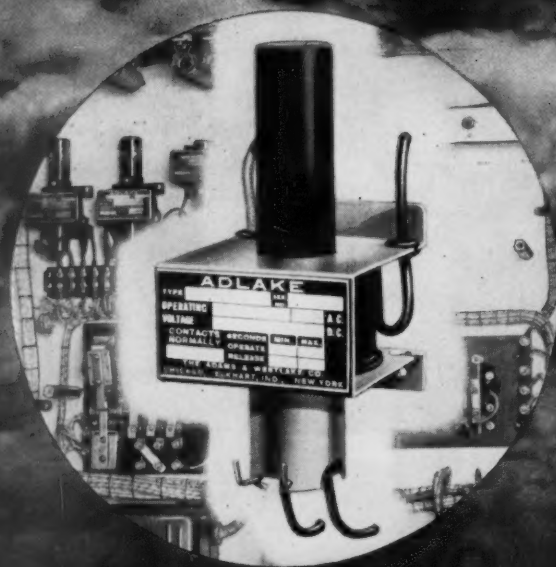
1857



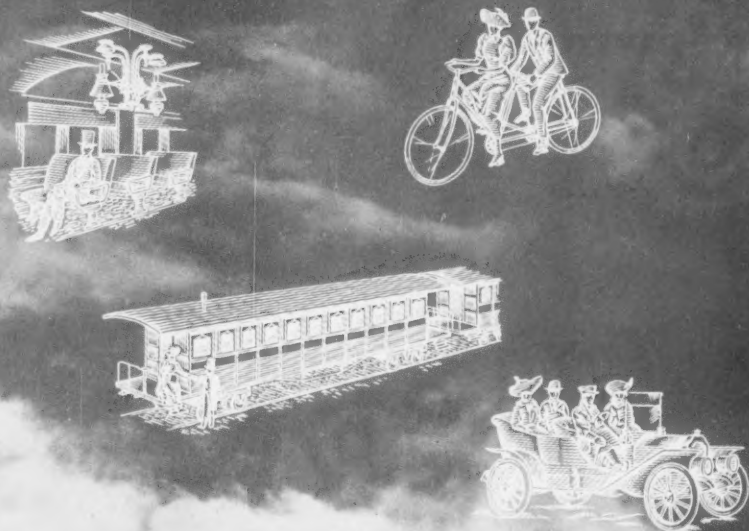
1957 . . . and now for



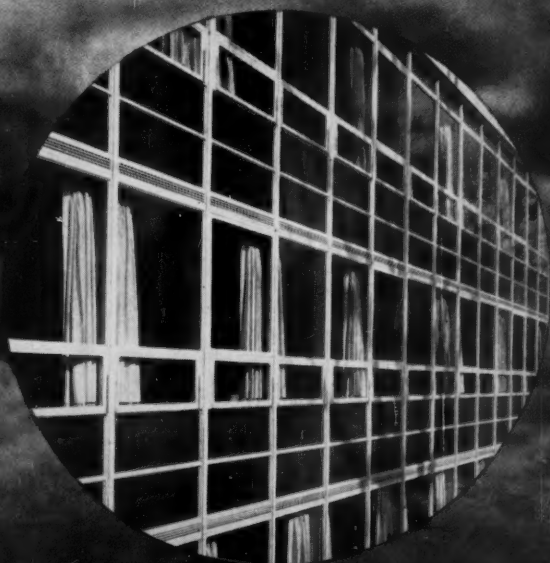
Transportation



Electronics



our second hundred years!



Building Construction

The Adams & Westlake Company
 NEW YORK ELKHART, INDIANA CHICAGO

A lot of history has passed in our first hundred years. We have seen sweeping changes take place in every area of human experience. But Adams & Westlake has not changed in policy or in dedication to the maintenance of product quality. Every Adlake product must be as excellent as our 100 years of know how can make it. This assures continuing growth for us and better products for our customers in the transportation, electronics and building construction industries.



It's a green light!

**- ON RAIL ENDS, RAIL JOINTS,
FROGS AND SWITCHES**

with —

NATIONAL

RAILWAY SPRING WASHERS

— on the job!

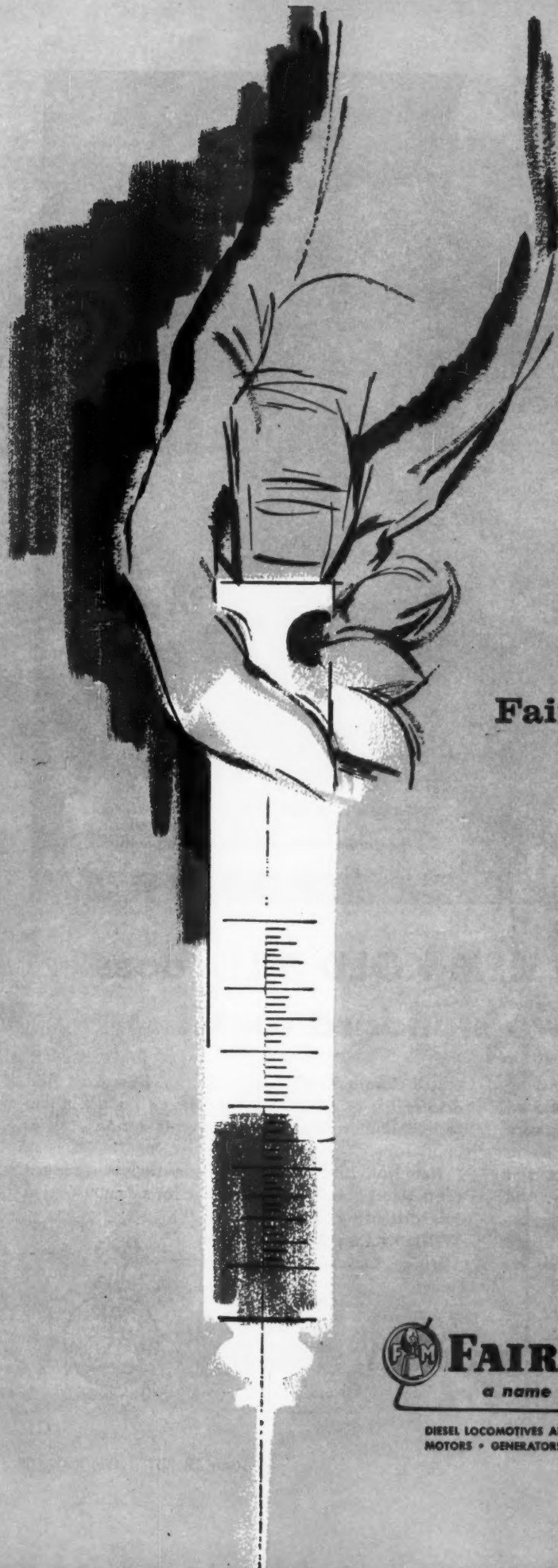


Powerful NATIONAL Spring Washers have demonstrated their ability to reduce maintenance costs. The reserve power, designed into these service-proven spring washers, absorbs shocks and assures constant bolt tension.

A COMPLETE LINE OF RAILWAY SPRING WASHERS

The NATIONAL LOCK WASHER COMPANY

Serving Industry Since 1886 — NEWARK 5, NEW JERSEY, U. S. A.



inject new life

Fairbanks-Morse

Unit Exchange

This Fairbanks-Morse service offers you a means of injecting new life into an F-M engine or other major component in minimum time.

Your exchange equipment meets current specifications—and carries the same warranty as new equipment.

Unit exchange reduces your need for repair facilities . . . large parts inventory . . . and offers you the quickest way to return a locomotive to more profitable service at reduced maintenance. Fairbanks, Morse & Co., Dept. RA2-25, Chicago 5, Illinois.



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a name worth remembering when you want the BEST

DIESEL LOCOMOTIVES AND ENGINES • MOTOR CARS AND RAILROAD EQUIPMENT • ELECTRIC MOTORS • GENERATORS • PUMPS • SCALES • WATER SERVICE EQUIPMENT • HAND LAMPS



***Once over with KEM KOLD BILD[†] does
the job of two standard coats!**

Now you can cut material and out-of-service costs by eliminating time for drying and application of a second coat. One full coat of Kem Kold Bild does it using conventional spray equipment. Kem Kold Bild dries in 1½ hours, is ready for stenciling in 2 to 3 hours. You get good film flow with a minimum of overspray. And a dry-film thickness as heavy as 2½ mils.

This cold-spray synthetic enamel produces a bright gloss of exceptional durability, too. Withstands re-

peated cleanings and toughest service. Kem Kold Bild doesn't lift or affect primers. There's no pin-holing or bubbling from entrapped solvents during or after application.

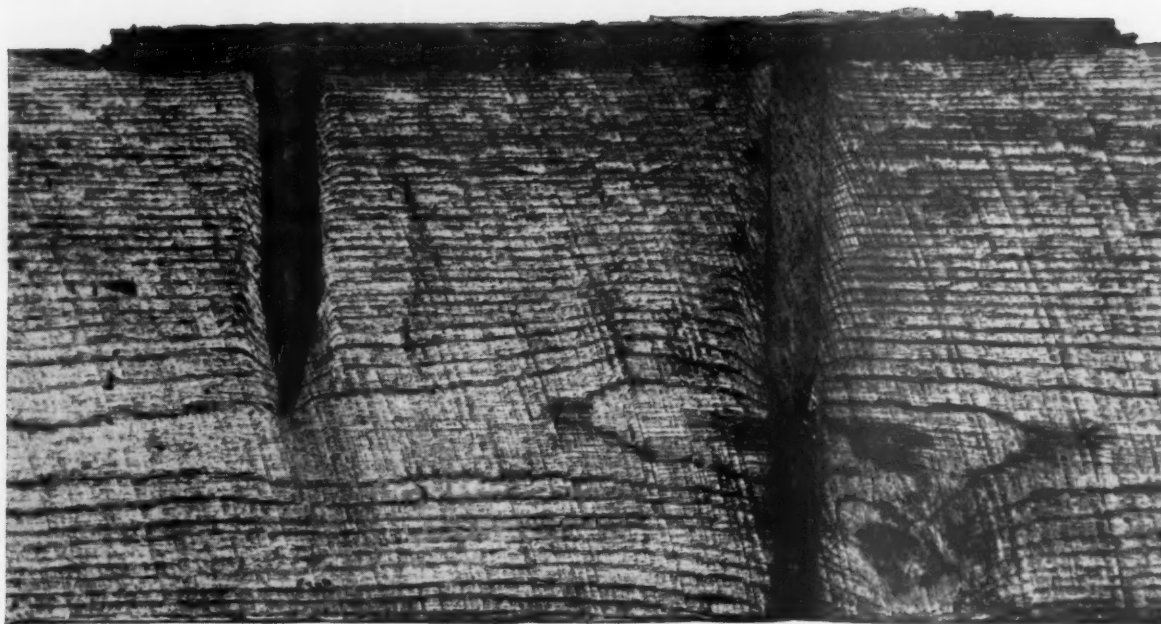
Kem Kold Bild is being used by leading railroads and car builders now. Why not arrange for a demonstration by contacting The Sherwin-Williams Co., Transportation Division, Cleveland 1, Ohio.

[†]Trade-Mark

SHERWIN-WILLIAMS RAILWAY FINISHES



Plan for the future —



Unretouched photograph of cross section of tie showing underplate and spike-hole area protected for 10 years by Bird Self-Sealing Tie Pad.

SLASH YOUR TIE COSTS WITH BIRD SELF-SEALING TIE PADS

Here is PROOF of the effectiveness and durability of the seal of the Bird Self-Sealing Tie Pad to the tie.

This Bird Self-Sealing Tie Pad was installed on a 1944 cross tie as part of a new rail laying program in 1946. The tie was removed from track in July, 1956 for exhibition purposes.

Note the protection to the underplate and spike hole wood which has been provided over a 10-year period by the Bird Self-Sealing Tie Pad. There is no trace of the well-known effects of moisture or

abrasion in either of these vulnerable underplate areas. Destructive moisture and abrasive materials could not penetrate the seal.

The Bird Self-Sealing Tie Pad is specially designed to provide an effective and durable seal with the tie. The pad also protects this seal and acts as a buffer between the tie plate and the tie to eliminate mechanical wear. That's why you can slash your tie costs at least 50% through the use of Bird Self-Sealing Tie Pads. For further information, write Bird Tie Pads, Dept. HRA-2, East Walpole, Massachusetts.

BIRD SELF-SEALING TIE PADS ARE RECOMMENDED FOR:

Bridge Decks • Curves • Switch Timbers
Highway Grade Crossings and Other
Paved Areas • Crossing Frogs
Insulated Joints • With Smaller Tie Plates
Pile Cutoffs • Through Station Platforms
Out-of-Face Installations in Rail-Laying
Programs • All other locations where
tie life is short or replacement costs are high.

Buy the Best...



Buy BIRD



this ACME STEEL
grain door **IDEA** can help you
serve grain shippers better, faster

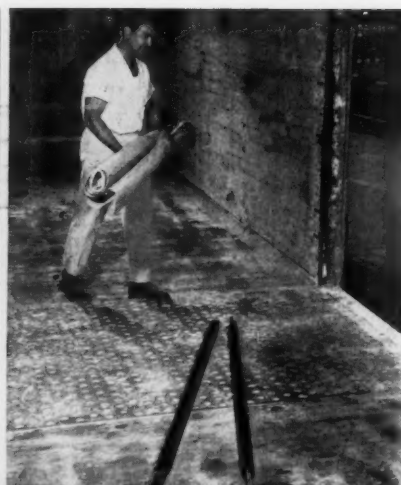
Proved in service, these Acme Steel Grain Doors provide a fast, economical barrier for grain or malt shipped in box cars.

They're easy to set up for loading. Unloading is fast and simple. In transit, or during loading and unloading, Acme Steel Grain Doors assure positive protection and control of the load. Heavy, reinforced, high quality paper, supported by horizontal steel beams and vertical, flexible steel slats holds grain load securely and clear of the car door.

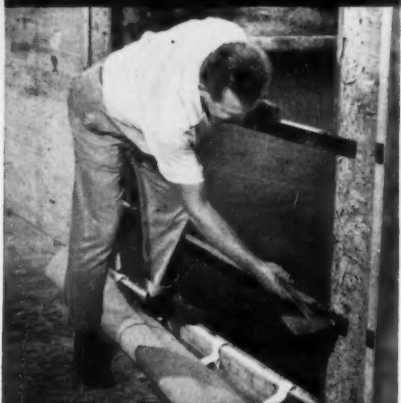
Let an Acme Idea Man give you a demonstration, or show you the new fact-packed Acme Steel Grain Door movie, or write for folder today. There is no obligation. Dept. RAG-27, Acme Steel Products Division, Acme Steel Company, Chicago 27, Ill.



GRAIN DOORS



ONE MAN... FIVE MINUTES...
Acme Steel furnishes all the parts, just unroll the package, drive ten nails per door and the Acme Steel Grain Door is in place.



STRONG... TIGHT... severe tests prove that the Acme Steel Grain Door can take all the punishment encountered under all handling and transit conditions.



NO BULGE... EASY TO LOAD and UNLOAD... horizontal steel beams and vertical steel slats prevent bulge from springing the car door. Automatic and manual unloading are fast and easy.

ENGINEERS ARE SAYING—

'Meet Me in St. Louis'

FOR WHAT? The 56th annual meeting of the American Railway Engineering Association.

WHEN IS IT? Starts on Monday, March 4; runs until noon Wednesday, March 6.

AND WHERE? At the Sheraton-Jefferson Hotel, St. Louis.



William J. Hedley
President, AREA

DON'T MISS THE SPECIAL FEATURES indicated ➡ in the program.

WE'LL BE THERE TOO!
Drop in to join the Railway Age staff at the Simmons-Boardman "Coffee Bar"—8:00 to 10:00 each morning in the North Room—fruit juice, rolls, coffee—come and meet your friends.

MONDAY MORNING, 9:30 to 12:00—Gold Room

- ▶ Address by President Wm. J. Hedley
- Report of Executive Secretary Neal D. Howard and Treasurer A. B. Hillman
- ▶ Address—"The Engineer's Responsibility for Progress," by R. G. May, vice-president, Operations and Maintenance Department, AAR
- ▶ Address—"Unemployment Tax Reduction Through Employment Stabilization," by Thomas M. Healy, member, Railroad Retirement Board
- ▶ Address—"Growing with the Nation," by Major General Emerson C. Itschner, chief of engineers, Department of the Army
- ▶ Address—"Research Review," G. M. Magee, director of engineering research, AAR

MONDAY AFTERNOON, 2:00 to 5:00—Gold Room

Reports of Committees

Contract Forms

- ▶ Address—"Why Not Railroad Protective Insurance That Protects?" by C. D. Dawson, superintendent of insurance, B&O

Records and Accounts

Yards and Terminals

- ▶ Address—"Car Rollability on Grades," by F. R. Smith, chief engineer, Union Economics of Railway Location and Operation
 - ▶ Address—"Train Transit Time," by Dr. L. K. Silcox, honorary vice-chairman of the board, New York Air Brake Company
- Waterways and Harbors; Highways

MONDAY EVENING, 7:00—Gold Room

Dinner, entertainment and dancing; address by Lucius Beebe; film "June Decision"

TUESDAY MORNING, 9:00 to 12:00—Ivory Room

Reports of Committees

Water, Oil and Sanitation Services

- ▶ Address—"Handling of Radioactive Materials When Involved in Leakage and Fires," by Dr. W. G. McKenna, chief chemist, AAR

Cooperative Relations with Universities

- ▶ Address—"Engineers a Commodity," by Earl C. Kubicek, director of alumni relations and placement, Illinois Institute of Technology

Wood Bridges and Trestles

- ▶ Address—"Fire Retardant Coating Research," with film "AAR Participation in A-Bomb Studies," by Seymour Caburn, chemical engineer, AAR

Impact and Bridge Stresses; Iron and Steel Structures

Masonry

- ▶ Address—"Prestressed Concrete Bridges in Europe" (illustrated), by E. J. Ruble, research engineer structures, AAR

TUESDAY NOON, 12:00—Gold Room

Announcement of results of election of officers

- ▶ Address by A. K. Atkinson, president, Wabash

TUESDAY AFTERNOON, 2:30 to 5:20—Ivory Room

Report of Committees; Clearances; Waterproofing; Wood Preservation; Buildings

- ▶ Film—"Faces and Figures," telling the story of hardwood veneers for plywood

Maintenance of Way Work Equipment

Economics of Railway Labor

- ▶ Address—"Where Most of Your Dollar Goes," by E. H. Hallmann, director of personnel, Illinois Central

Ties

- ▶ Panel Discussion—"Ties—Their Use in Track," by L. C. Collister (Santa Fe), moderator; L. E. Gingerich (PRR); L. P. Drew (UP); M. J. Hubbard (C&O); W. E. Fuhr (Milwaukee); and R. B. Radkey (IC)

WEDNESDAY MORNING, 9:00 to 12:20—Gold Room

Reports of Committees: Continuous Welded Rail; Rail; Track

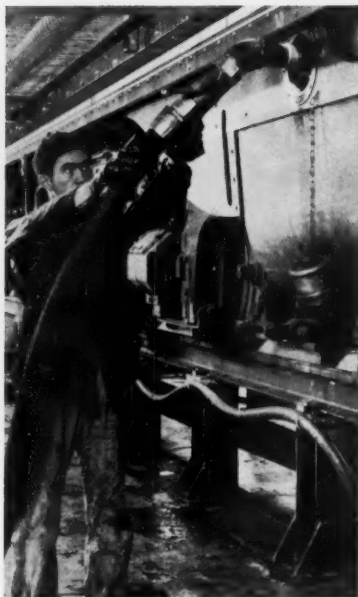
- ▶ Panel Discussion—"Should the Railroads Make More Extensive Use of AREA Track-work Plans?" by H. B. Christianson, Sr., (Milwaukee) moderator; M. J. Zeeman (Santa Fe); K. E. Dunn (NYC); F. W. Creedle (American Brake Shoe); John Ayer, Jr. (D&RGW); and W. R. Bjorklund (NP)

Roadway and Ballast

- ▶ Address—"Soil Engineering Problems During the Construction of the Atlantic Railroad in Colombia," by Rockwell Smith, research engineer roadway, AAR



WORKMEN swarm over a diesel unit to get it serviced quickly and out on another westbound run. Each overhead hood has its own motor and exhaust fan. Elevated work platforms are of open-mesh steel grating on cantilevered supports.



LOWER LEVEL. Leak-proof, spill-proof fueling nozzles reduce the fire hazard.



FLOOR LEVEL. Sand is delivered within the shop by air pressure instead of by gravity.



UPPER LEVEL. Overhead hoses deliver sand to top boxes wherever units stop in the shop.

SEE FOR YOURSELF

Diesel Servicing Moves Indoors

Traditional practice on the railroads has been to deliver fuel, sand and water to locomotives out of doors. It was a matter of practical necessity in the age of steam power and it seemed logical to continue the practice when diesels came into the picture.

The tradition has now been broken. At Council Bluffs, Iowa, the Union Pacific has built a new facility in which *all* diesel-servicing operations—including fueling, watering and sanding—are done under cover. The building is of fire-resistant construction.

How It's Done

The UP labels its new diesel facility at Council Bluffs a "lubritorium." It would be difficult to think of a better term for describing a building designed to house all the operations involved in servicing diesel locomotives, leaving nothing to be done out-of-doors except washing. Light repairs are made there, too, but heavy repairs, if required, are made in another shop at Omaha.

Will Handle 24 Diesel Units

The new facility, built at a cost of \$2 million, is large enough to handle 24 diesels at one time. It is divided

into two distinct sections, each having three through tracks. Four diesel units can be handled simultaneously on each track. The facility has the conventional arrangement of depressed and elevated working platforms, and track pits, with the rails supported on pedestals. The two sections are separated by a concrete platform which houses a small machine shop, tool room and office space.

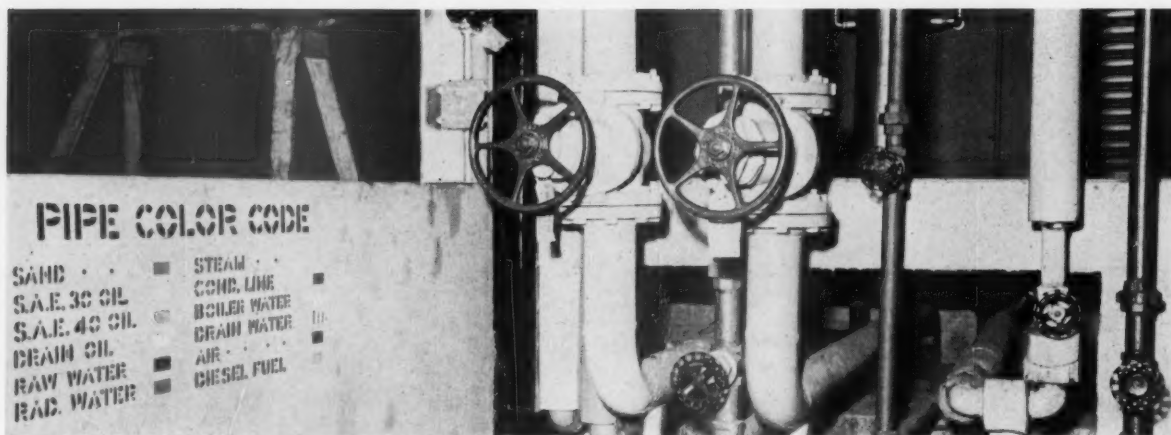
For obvious reasons, the facility is constructed of fire-resistant materials throughout; no wood was used except for timber bearing piles in the foundation. The building has a structural-steel frame, concrete-block exterior walls, glass-block fenestration, concrete floors and a steel roof deck

overlaid with 4-ply roofing. The elevated working platforms between tracks and along the side walls are formed of open-mesh steel grating supported by cantilever-type structural-steel frames.

Locomotives enter the shop through large rolling-steel doors operated by remote controls at either end of the building. Once a diesel is run into this shop and stopped, it may not be moved again until it is ready to couple onto a train destined for the Coast.

How They Get Fuel, Water, Oil

The fuel service lines are located immediately below the elevated platforms with numerous outlets spaced



COLOR CODE is used for identification of pipe lines carrying the 12 materials needed in servicing diesels.

at intervals so that any of the various types of diesel units may be fueled without moving them. All fueling nozzles are of the leak-proof, spill-proof type for reducing the fire hazard.

All other service lines, with the exception of those for sand, are also placed beneath the elevated platforms. These include zeolite-treated water for the steam generators, chromate-treated water for the cooling systems, and lubricating oils. Sufficient outlets are provided to permit one-stop servicing. Hinged steel-mesh panels, provided where necessary along the edges of the platforms, swing upward to allow access to the water, fuel and oil inlets on the sides of the locomotive units, which otherwise would be inaccessible because of the platforms.

Service pipe lines had to be provided within the building for carrying

these 12 different materials: Sand, S.A.E. 30 lube oil, S.A.E. 40 lube oil, drained lube oil, raw water, radiator water, steam, condensate, boiler water, drained water, air and fuel oil. A color paint scheme assures proper identification of the lines. The color scheme is stenciled on the walls at several locations for quick reference.

Sand Goes by Air

The provision of interior sanding facilities was one of the most difficult problems facing the designers of the building. A system was adopted that uses air pressure instead of gravity to force the sand through pipe lines to the service outlets. Manufactured by the T. W. Snow Construction Company, this installation includes two 10-ton capacity overhead storage tanks, one placed over the middle track in each section.

There are 28 sanding outlets, so arranged that sand may be delivered to the side, front or top boxes of locomotive units on any of the six tracks.

Another feature includes 66 exhaust hoods placed over the tracks to remove gasses generating while test-running engines. Each hood has its own motor and fan for exhausting the diesel fumes through the roof.

The center machine-shop platform consists of a concrete floor on an earth fill. Four small toilet rooms have been provided beneath this platform, and also a battery-charging room which is reached from the depressed-floor level of either section.

Quick Charge for Batteries

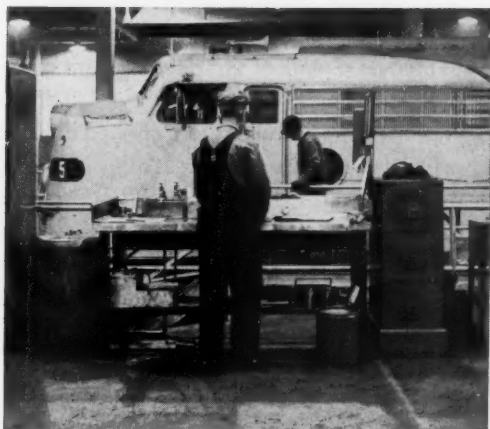
Provision also has been made for giving a quick charge to batteries without removing them from the diesel units. This is done by means

What Others Think of It

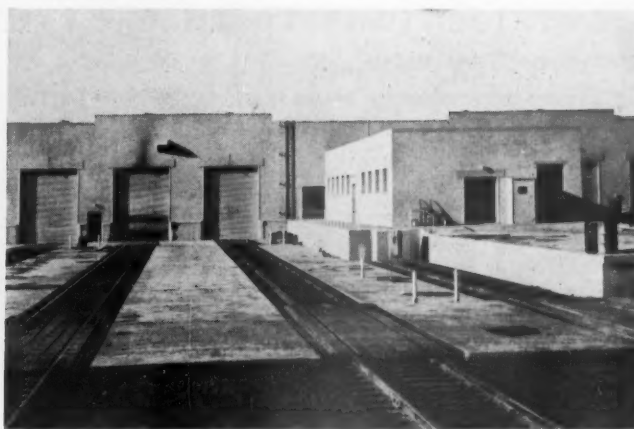
There are certain to be differences of opinion about such a break with tradition as the fueling and sanding of diesels indoors. Here are two opinions:

Objects to Fueling Inside—"I can see where it is all right to bring the sanding operations within a building because, even now, some sand is spilled within a maintenance shop when the sanding devices are tested. Watering inside the building is all right, too. But not fueling. Anything which will support a fire where diesel units are parked should be kept away. We are appalled at the amount of fuel oil that is now spilled at our fueling stations and which oil separators remove from drainage lines. I doubt whether our road will ever adopt the practice of fueling diesels indoors." (Railroad architect)

More Roads Will Do It—"I believe it's a good idea. It wasn't done before because of a tradition carried over from the days of steam power. Then, there was so much wood and accumulations of oil and grease in the roundhouses that locomotives had to be brought in with their fires drawn to prevent fires. They could have watered the engines in the old roundhouses but the tracks were needed by other units. To save time, the locomotives were watered outdoors. "With diesel locomotives you don't have the open-fire hazard, and there is no reason why they can't be fueled in a modern fire-resistant building. It would not be practical, however, to sand units in a shop where heavy repairs are made because of the possible damage to the disassembled engines. I think more roads will do their servicing indoors where practicable." (Diesel-locomotive manufacturer)



OIL-TESTING area is provided at one end of wide center platform. A machine shop and toolroom are located here.



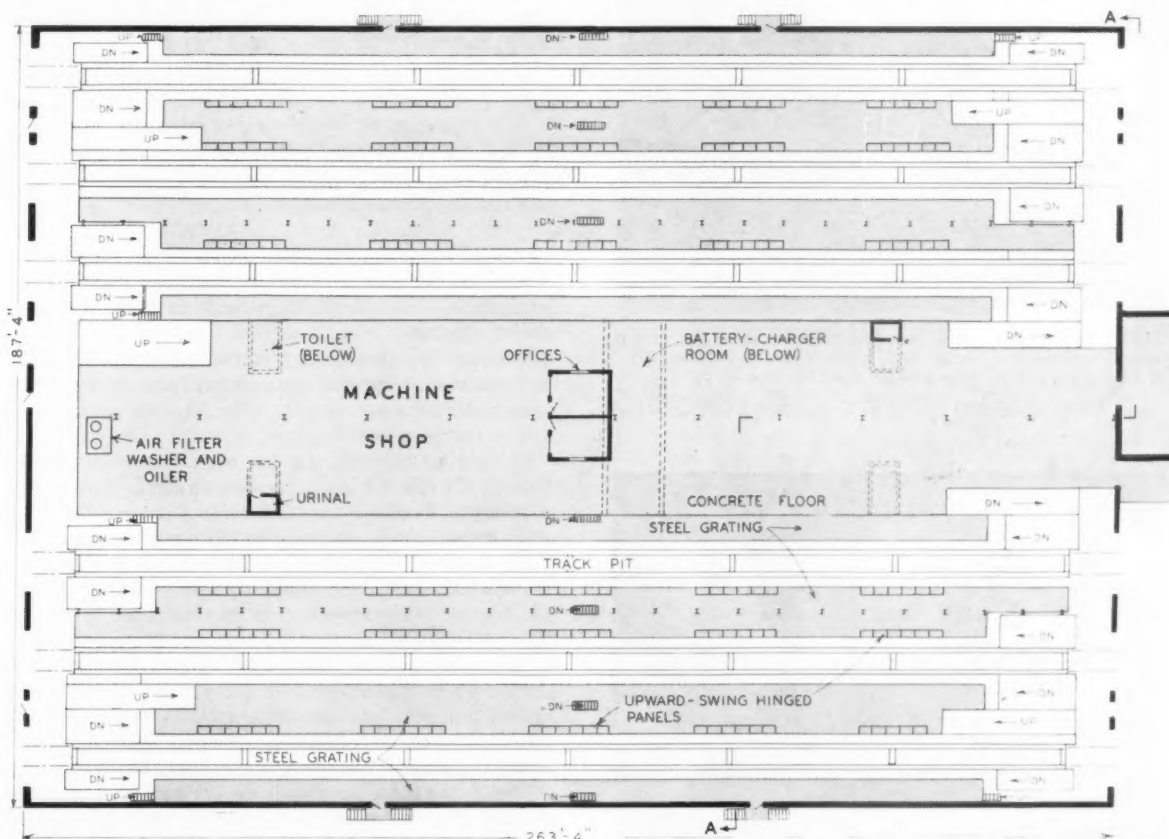
STORES BUILDING is attached to the east end of the shop. It is served by a concrete platform having a two-car spot at side and truck tailboard space at end.

of G-E rectifiers permanently fixed to the columns which support the elevated platforms. These are placed at 14 locations so as to reach all units, and they have clip-on leads so that they will be detached without damage if the diesel should be moved. In general, the quick charge can be

made in an hour, but the rectifiers are equipped with cut-out devices which stop the charging after eight hours.

Ramps are provided at the ends of the platforms to give fork-lift trucks access to each level from an adjoining stores building which houses the necessary supplies and an office

space. The stores building, 35 by 100 ft, is placed on an outside concrete platform which has two car spots on one side and a truck tailboard at one end. Two locker buildings, one for enginemen and the other for the shopmen, were also constructed nearby.



PRIMARILY a servicing facility, the new shop is designed to run diesel units through these operations as fast as possible. The shop is large enough to hold four units on

each track, or 24 units at one time. Ramps at platform ends connect the three levels to facilitate trucking. Shaded areas designate the areas at car-floor height.

CONTRIBUTIONS TO RAILWAY RESEARCH—NO. 5



THE AUTHOR (right) looks on as technician takes readings from automatic precision meter for recording the amounts of tracer elements in diesel fuel.

Studies aimed at the development of an atomic locomotive have led the D&RGW to explore the possibilities of applying nuclear principles to research in other directions.

One result has been an "atomic" switch lamp. Research with radioactive isotopes and studies of activated engine parts have led to findings that are producing economies for the railroad.

It's now working on a fluoroscopic method of testing rail welds, the development of nuclear means of measuring the materials soundness, as in crossties, and use of isotopes in material preservation.

'Atomic' Methods Promise ...

Written exclusively for RAILWAY AGE

By RAY McBRIAN

Director of Research, Denver & Rio Grande Western



"ATOMIC" switch lamp as photographed at night (four-minute exposure) by its own light. Lamp has "half-life" of about ten years, requires no maintenance or fuel.

Aside from his work in nuclear research as head of the Rio Grande's research laboratory, Mr. McBrian's interest in the subject has led him to take an active part in the nuclear research activities of technical societies. He is a member of the Atomic Energy Committee of the AAR and also of the Nuclear Energy Advisory committee of the Society of Automotive Engineers. He is, in addition, a key figure in the joint program of the Rio Grande and Baldwin-Lima-Hamilton to develop an atomic power unit for locomotives.

Mr. McBrian is currently in the news for another reason: At the convention of the AREA in St. Louis next week he will move up from vice-president to president of that association.

The railroads individually and as an industry should be encouraged to enter into more research studies and be permitted to "roam around" in fields of basic or fundamental research.

Nowhere are there more profitable opportunities for basic, as well as applied, research than that involving the relation of the atom to railroading, that is, the field of atomic energy research.

Most of the thinking that has been done about atomic research for railroad usage has been in the intriguing field of power or locomotive development. Yet there are many other opportunities for utilizing this new science. Research on the Denver & Rio Grande Western, both basic and applied, has been directed towards exploring all such possibilities. This program has two principal goals: (1) The application of an atomic power unit to the propulsion of locomotives, or to other power sources such as a stationary power generating unit; and (2) the application of nuclear principles and discoveries to any phase of railroad operation whereby economies and better operational procedures, methods or practices can be secured.

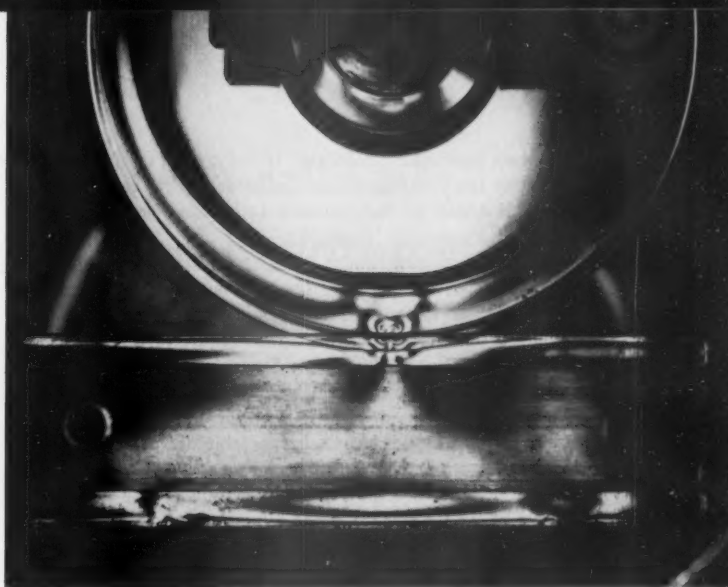
The research for an atomic power unit of a radically different concept has required many "wanderings" into the relatively unknown fields of reactor relations to engine thermodynamics and principles of application. Such studies have been in the realm of theoretical or basic re-



ASSEMBLY of radioactive parts being checked with radiation meter before installation in diesel locomotive.



TECHNICIAN using electron microscope in Rio Grande laboratory. This device is especially useful in evaluating lubricating oils for internal combustion engines.



PHOTOELASTIC study of stresses in a wheel and rail in joint-bar area. Such studies give information on causes of rail failures and are useful in both rail and wheel design.

New Horizons in RR Research

search. Many complicated calculations as to theoretical possibilities and limitations were made and have encouraged future longer-range planning and study, which will embrace the field of applied research and practical planning for such power development units.

These planned research studies with definite goals have brought out additional lines of research in the atomic field, which offer definite possibilities. One of these has concerned the development of an "atomic" switch lamp. Working in cooperation with the U. S. Radium Corporation, the Rio Grande developed the possible application of a self-luminous source for switch lamps, markers, lanterns, lights in tunnels, dial illumination, and the marking of objects located in extremely dark areas.

In the "atomic" switch lamp, the krypton isotope 85 beta ray reacts with phosphorus to produce a self-luminous glow. The krypton has a half-life of approximately ten years, requiring no maintenance or fuel. The unit can be restored at any time to full luminous power by refilling it with the krypton isotope gas. The gas is inert and the lamp can be used with safety. The use of such lamps must be licensed by the Atomic Energy Commission.

Use of Radioactive Isotopes

Research studies using various radioactive isotopes have wide applications and possibilities in the railroad field. Initiative and ingenuity are required in adapting these materials to specific railroad problems.

One of the most successful avenues of basic research has been in the study of engine combustion phenomena as related to railroad diesel and gasoline-powered engines. For example, studies involving the application of sulfur 35, a radioactive isotope, to diesel fuel led to a basic finding that petroleum fuels, when injected into the hot power cylinder, are colloidal in nature and that, by controlling the particle size of these colloidal materials, better combustion and lower wear rates, with increases in power output, could be secured.

The radioactive sulfur in the fuel permitted measure-

ment of its quantity and following it as a residue remaining after combustion. The study of various fuels after irradiation with varying amounts of gamma and beta rays is offering intriguing possibilities in the field of fuel evaluation.

The Rio Grande research laboratory has pioneered in the use of activated engine parts for measuring wear under service conditions. This technique offers a means of quick evaluation for many types of materials, including fuel, lubricants, filter coat materials, and metal parts such as rings, wrist pins, liners, pistons, etc.

Rio Grande nuclear scientists believe that the vast amount of research work, both classified and non-classified, done by the various laboratories of the Atomic Energy Commission provides a wealth of information which can be the basis for favorable application by the railroads

Railroads Do Research Too

In recent months *Railway Age* has carried several articles reporting what units in the railway supply industry are doing in the way of research in the railroad industry. More articles of this type are scheduled for the coming months, because the activities of these firms are fundamental to any summary of the research effort under way in the industry. But the supply manufacturers do not have a monopoly of research activity in the railroad business. The AAR of course has a wide variety of research in progress, and many individual railroads have a substantial amount of work under way. One of these is the Denver & Rio Grande Western, whose program is described in this article.

to their particular problems. It is the goal of management on this road to encourage and develop the ingenuity and inventiveness of the research technicians in the application of these basic principles.

A project now under study is the development of a rapid inspection unit for use on welded rails, whereby a fluoroscopic image amplifier could be used so that defects can be observed visually without requiring time for penetration and photographing. Such a unit, which appears technically feasible, could also be used at steel mills for locating defects in rails. It would require no electrical power and could be made portable to permit it to be moved from one location to another.

Use of Photoelastic Methods

Other studies are aimed at the development of nuclear means for measuring the density of materials, for determining the soundness of ties, and for measuring track conditions. The use of isotopes in the preservation of materials, and otherwise improving the properties of materials for railroad usage, is also under study.

In other fields of research, the railroad is continuing to study both rail and wheel design by photoelastic methods, especially as related to stresses in both wheels and rails.

Such studies give information as to the causes of corrosion-fatigue failures, fillet failures, and failures around bolt holes. Application of this research tool was an aid in developing the new 106-lb rail section which the Rio Grande is now using.

Use of the electron microscope for railroad applications, especially as related to lubricants, is another field of endeavor on the Rio Grande. One of the most important uses of this device has been the determination of acceptable lubricating oils for internal combustion engines.

In evaluating the physical properties of oils the electron microscope makes determinations that can be done by no other means. The Rio Grande will not accept an oil which does not show with the electron microscope a finely dispersed additive and stable base stock combination. Such an oil is necessary for long life of the engine parts and the reduction of deposits and wear rates.

These few examples of research by the Rio Grande point up the fact that the railroad industry or an individual railroad can utilize and take advantage of rapidly advancing technological developments. These studies can be applied to any phase of railroad operations. Research studies of individual railroads can be coordinated with industry-wide research to the end that more rapid progress can be achieved in the transportation research field.

Railroading



After Hours with

Jim Lyne

UNHERALDED OCCUPATIONS—Of the vital jobs in railroading which seldom get in the spotlight, James L. Lee of Galveston nominates the wirechief and the lineman. Constant and efficient telephone service is essential to normal railroad operation, and the users of this service seldom stop to consider the 7-days-a-week of around-the-clock attention that is required to keep this service functioning.

D. Berman, assistant superintendent of the Rock Island at Little Rock, suggests the car distributor as deserving of a round of applause ("A good one, I mean," he adds). Car distribution, he asserts, "is big business, even on the division level. There is a lot of money involved in per diem charges at \$2.75 per day. Moreover, the car distributor is an important person from the standpoint of satisfying our customers."

Maybe it's because the first job I ever had was in the car department that I am still impressed with the dollars-and-cents value of a fully competent car inspector. (The same evaluation would apply to any equipment inspector whose job it is to forestall trouble before it happens.) Unfortunately, the importance of inspectors can only be measured in reverse, by their failures—by the results of the defects they fail to detect. But for every defect they overlook with unhappy results, there must be hundreds of similar misfortunes which their alertness prevents.

OVERPASS PUBLICITY—For a slogan to put on highway overpasses, to impress on motorists the importance to them of movement of freight by rail, suggestions keep coming in. One, from James Wilson, of Jamaica, N.Y., is simple and forthright. It reads: "Keep Freight Off the Highway."

Freight Agent D. D. Dixon of the ACL at Atlanta proposes the following:

*For safer highways, DECONGEST
Let the RAILROADS do the rest*

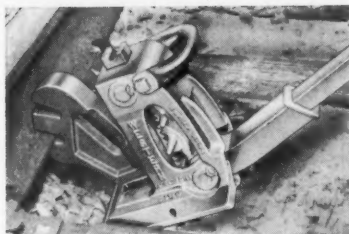
There are a lot of slogans successfully used in the advertising of consumer products—phrases which pack a lot of meaning-plus-incentive into a few words; and which, at the same time, are not irritating or controversial. Nobody would suggest that a lot of truck movement of freight is unjustified. But the long-haul part of it into centers of distribution belongs economically on the rails; and if that fact were more widely recognized, both the railroads and highway users would be better off.

OVERCROWDED TRAINS—A railroad man was telling me the other day of a ride he had on another fellow's railroad—on a train overcrowded because the planes were grounded. Seats were scarce and the dining car was undermanned, and short of food for such a heavy load. And, as could be expected, it was the railroad that was the target of the passengers' complaints.

Wouldn't it be possible to have a neat card printed with some such heading: "We're Sorry This Train Is Uncomfortably Crowded"—and follow with an explanation? The card might wind up with a request to the reader to send in his suggestions for answering the problem.

I have done some talking to passengers on trains crowded by grounded planes, and have found all of them receptive to reason. I believe that complaints could be minimized, and perhaps even some positive good-will generated, if the facts of the situation were regularly explained to passengers, every time it occurs.

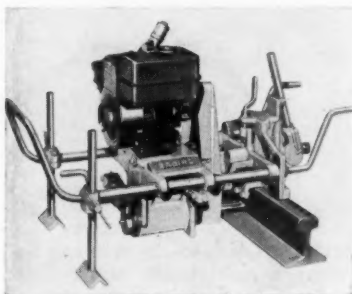
WHAT'S NEW in railway engineering and maintenance



Track Liners

... made from track jacks

A new tool, the Line Aid, is said to ease the job of track lining with track jacks. The new tool is light in weight and compact in size so that it requires little storage space and can be regularly carried on a section car to handle expected—and unexpected—lining jobs. It consists of a one-piece malleable-iron casting having two notches which, it is said, enable it to be used for lining all weights of rail regardless of ballast conditions. It is designed for application to all sizes of track jacks and utilizes the full power of the jack for moving instead of lifting the rail. *Western Railroad Supply Company, Dept. RA, 2400 S. Ashland ave., Chicago 8 •*

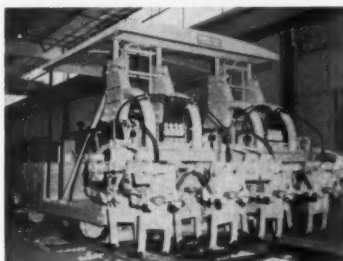


Portable Rail Drill

... has automatic feed

A new portable rail drill utilizes automatic power feed. This feature, the manufacturer states, assures the proper feeding rate for various sized drills and rail-web thicknesses. Hand feeding is also possible when needed. The new machine weighs 165 lb, and is powered by a 2¾-hp, 4-cycle, air-cooled, 2,800-rpm gasoline engine that drives the drill chuck at a 30-to-1 reduction. A built-in, high-tension flywheel mag-

neto insures quick and easy starting, according to the manufacturer. Drills may be moved ahead in the drill holder to utilize their full length. A rapid-acting clamp enables the operator to remove the machine from the track in a few seconds. *Racine Hydraulics & Machinery, Inc., Dept. RA, Racine, Wis. •*



Multiple Tamper

... is faster

Indexing, i.e., moving from tie to tie in tamping operations, will be much faster with the latest model of the Jackson Multiple Tamper. This is because of a radically different hydraulic drive for tamping and traveling, working through a standard truck transmission. The new model has a divided crosshead of the Track Maintainer type. The new model is made in U.S. standard track gage, meter gage and the more common of the wide gages found abroad, and the entire chassis was redesigned to facilitate fabrication to these various gages. Plans also are under way to make the new Multiple Tamper available with either gas-engine or diesel-engine power.

Numerous improvements and refinements also have been made to the Jackson Track Maintainer. The most important one is that users are now offered either a Continental M330 gasoline engine or a Detroit (General Motors) diesel model 3031C. *Jackson Vibrators, Inc., Dept. RA, Ludington, Mich. •*

Metal Coating

... for corrosive atmosphere

For protection of metals under severe corrosive atmospheres, a

heavy-duty drying-type pigmented coating is available under the trade name No-Ox-Id Aluminum Filler. It is designed for spray application using positive piston-type equipment. According to the manufacturer, this product gives a one-coat application that provides protection for four to seven years. It is said to have these additional features: Good decorative color; dry to the touch overnight and dust free; thoroughly dry after four weeks; excellent adhesion; and good elasticity. Also, it can be stenciled over with a drying oil-type paint.

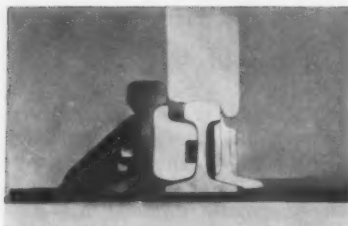
The manufacturer recommends use of the product for spraying steel bridges, all-metal buildings (inside and out), metal roofs, gutters, eaves, signal cases and signal bridges; as a filler between all metal-to-metal contacts, and metal to wood, concrete or brick surfaces; as a filler between uneven surfaces, where it serves as a seal against moisture or corrosive fumes; and on air-conditioning equipment. *Dearborn Chemical Company, Dept. RA, Merchandise Mart Plaza, Chicago 54 •*



Hy-Rail Car

... has more power

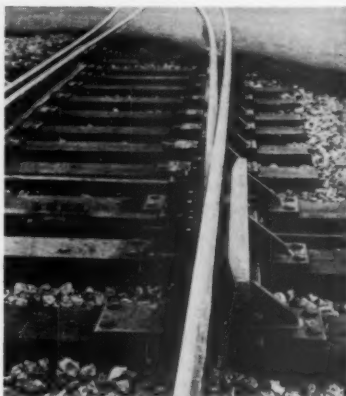
The 1957 model of Fairmont's A-34 Hy-Rail inspection motor car has been considerably improved. The improvements include: An increase in horsepower to 252; a heavy-duty oil cooler for the hydramatic transmission; a heavy-duty battery; and heavy-duty front springs and shock absorbers. The rail wheels are now easier to raise and lower because of an improved safety pin and the addition of needle bearings to the mechanical lock. *Fairmont Railway Motors, Inc., Dept. RA, Fairmont, Minn. •*



Switch-Point Guard Rail

... is heat treated

The Model 755 heat-treated switch-point guard rail has been made available for prolonging the life of switch points and stock rails. It is designed also to reduce the frequency of derailments at switches in yard operations. The new guard rail is 4 ft 9 in. long and is bolted securely to the base plates but does not require any bolts through the stock rail. Heavy side braces are welded to the base plates to give rigidity. The head of the guard rail



stands higher than the running rail, the principle of operation being the same as that for self-guarded frogs. The guard rail is heat-treated to give extra long service life but, when it becomes worn through heavy use, it can be replaced independently of the slide plates, braces and fillers. *Bethlehem Steel Company, Dept. RA, Bethlehem, Pa. •*



Brush Cutter

... is carried by straps

Designated the Southworth Brush Cutter, a pack-type motorized brush cutter, weighing approximately 39 lb, has been made available for increas-

ing brush-cutting production. This machine has joints in the saw arm which permit high flexibility in movement—up, down, sidewise and sawblade tilt—and, at the same time, firm footing for the operator.

A circular 10-in. saw blade at the end of the arm is rotated by an enclosed single-V adjustable belt powered by a two-cycle gasoline engine which delivers 2.8 hp at 4,000 rpm. It is equipped with a centrifugal clutch which cuts in when the engine is operating at speeds of 1,500 rpm. A finger-tip throttle on the arm permits easy control. Ignition is by a flywheel-type magneto having a rewind starter.

The engine is carried on the back by shoulder straps which permit the operator to use one hand for guiding the saw arm and the other for clearing away brush or for raising the saw arm for overhead work.

The cutter arm can be disassembled quickly for transporting the outfit in a car trunk. *Maintenance Equipment Company, Dept. RA, Railway Exchange Building, Chicago 4 •*

Rail Tongs

... available for Gradall

Hydraulically operated rail tongs have been developed for use with the Gradall machine. These comprise three steel fingers which operate with a scissors action. The touch control of these giant fingers allows the operator to grasp rail sections, lift and control them accurately, and easily butt the rail ends together.

The outstanding feature cited by the manufacturer is the positive control. The rail tongs are rigidly mounted to the end of the boom and the operator has the same positive-control action as the many other attachments, i.e., wrist action, 240-deg rotation, open and close tongs, down



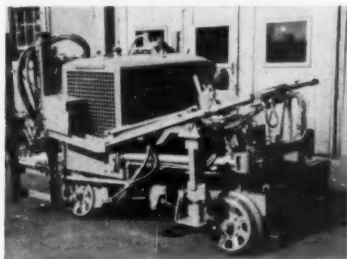
pressure, raise and lower, in and out, boom tilt and boom swing. There are no tag lines, swinging free on cables or guiding required. *Gradall Division, Warner & Swasey Co., Dept. RA, 5701 Carnegie ave., Cleveland 3 •*

Tie Pads

... with dimensional stability

The new plastic Gilco Tie Pad incorporates a special formula from among the esters of the thermoplastic compounds. The pads, designed to provide dimensional stability, can be fabricated to any size and practical shape for use on curved and

tangent track; under insulated joints, railroad crossings and turnouts; on bridges; and through highway crossings. In addition to being dimensionally stable, other advantages cited by the manufacturer are light weight, strength and resistance to high impact, heat, abrasion, brine, diesel and lubricating oils, and weather conditions ranging from the tropics to the arctic. It is said the pad will not split from spiking. *Gilman Brothers Company, Dept. RA, Gilman, Conn. •*

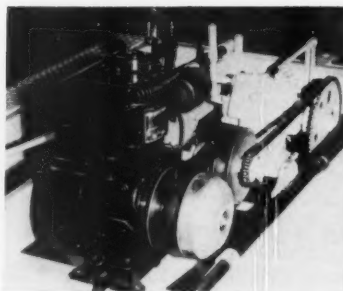


Bridge Machine

. . . serves many purposes

A new bridge machine, designed for one-man operation, does all the drilling and driving of lag screws on guard logs, drive rail spikes, etc. It is equipped with hand-operated pneumatic drills, impact wrenches, and saw for removing and applying bolts, sawing, etc., on any bridge members.

The machine is powered by an 85-cu ft rotary-type air compressor and is propelled by an air motor through a transmission. It is equipped with four-wheel air brakes with emergency reservoir; four drills adjustably mounted for simultaneous operation by the operator for drilling guard logs; a pneumatic spike driver mounted on pivoted supports for drilling spike and lag screws in such a manner that they can always be held in vertical position; duplicate travel and brake controls which enable the operator to move the machine while using the spike driver, a hydraulic turntable which permits the machine to be turned quickly or removed from the track to a set-off; pilot-operated control valves for ease of operation; and trays for material and hose storage. *Railway Maintenance Corporation, Dept. RA, P.O. Box 1888, Pittsburgh, Pa. •*

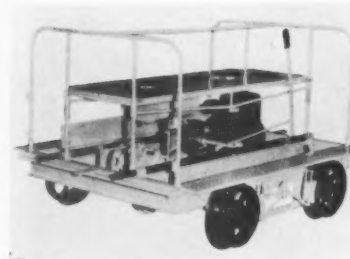


'Clutch Transmission'

. . . in new motor car

The Model 534-T section car has an automatic "clutch-transmission". Powered by an 8½-hp air-cooled, 4-cycle engine, it is equipped with a simple transmission system providing torque conversion with smooth, variable-pitch power flow which, it is said, automatically responds to increased power demands by multiplication of engine torque. This drive eliminates the need for a manual clutch, gear shift or tightener pulley.

The belt-driven automatic "clutch-transmission" consists of an engine-mounted centrifugal-driver unit and a torque-actuated countershaft-drive



en unit which, it is said, smoothly transmits power requirements through a final drive to a directional transmission mounted on the rear axle. It is said that jerky clutching cannot occur in the unit and, at idling speeds, the belt automatically adjusts to a zero-tension position.

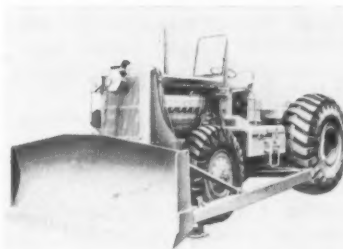
Clutch activation is controlled entirely through throttle position and the centrifugal forces generated in the driver unit cause the belt to clutch without slippage or grabbing. The unit has been tested on a dynamometer to 380-lb drawbar pull. It is claimed that this type of drive is convenient at grade crossings and where frequent starts and stops are encountered. *Northwestern Motor Company, Dept. RA, Eau Claire, Wis. •*

Wheeled Tractor

. . . is job-proved

Heavy-duty construction work may now be carried out with a rubber-tired tractor, designated No. 668 (Series C). Utilizing four-wheel drive, the new thoroughly job-proved machine is said to have more traction than the DW20 tractor and, if used for scraper pulling, is able to work faster. If fitted with a coupler and other modifications, the No. 668 can be used as a rubber-tired switcher, much like the DW10, DW15 and DW20 tractors, but with more tractive power.

The new machine is powered by a 300-hp turbocharged engine. Its standard transmission provides eight forward speeds (2.3 to 26.3 mph) and four reverse (up to 7.7 mph). Power is delivered to the front wheels by planetary gears. The standard transmission arrangement is said to be best for bulldozing and pusher



work, but an optional transmission, used primarily for hauling, is available for replacing the high-reverse gear with another forward gear giving a total of 10 forward speeds, and two in reverse. The combined weight of the tractor, bulldozer and cable controls is approximately 43,750 lb. Other equipment and attachments include the No. 456 scraper, any size four-wheel scraper, Hyster winch, counterweights and drawbar. *Caterpillar Tractor Company, Dept. RA, Peoria, Ill. •*

WHAT'S NEW in railway engineering and maintenance



New Payloader

... works at high speed

The International Model 12 Payloader combines the characteristics of a tractor, loader and shovel. This crawler-type, rear-engine, 1¾-cu yd front-end loader has three forward speeds, ranging from 0 to 10 mph, and three reverse speeds, from 0 to 13 mph.

It is powered by a 77-hp International UD-350 engine through a power-shaft transmission and torque-converter drive. By mounting the engine at the rear, the manufacturer states, the Payloader has better balance and stability through better weight distribution. This feature, it is said, extends the life of the track chains, idlers, rollers and other track parts, as well as permitting negotiation of steeper grades and muddy terrain to a much greater extent than the conventional tractor.

Other advantages cited by the manufacturer include: Power steering controls; pry-out action; break-out bucket cycle; 40-deg bucket tip-back at ground level; a super-service chassis tilt; adjustable operator seat; closed hydraulic system with pressure control; hydraulic-system shock absorber, 1¾-cu yd capacity with a 1½-cu yd struck capacity; and 9-ft discharge height.

Model 12 is mounted on standard International extended TD-9 track frames equipped with 15-in. wide low-profile grouser shoes. It is designed so that servicing the machine should be easy and simple. By removing two pins at the rear of the tractor and applying down pressure to the bucket, the chassis tips up to expose the deck of the main frame. With the chassis in the up position, it is possible to remove or service the steering clutches from that opening.

The bottom of the engine also

is serviceable with the chassis in that position. *International Harvester Company, Dept. RA, 180 N. Michigan ave., Chicago 1.* •

Tournatractor

... now comes in medium size

A medium-sized companion to the larger Model C Tournatractor has recently been made available. The new "D" model is powered by a 4-cylinder 143-hp diesel engine through a five-speed earthmover transmission. The result is a full range of speeds from 2.2 mph for tough dozing to 19.3 mph for job-to-job travel.

Its outstanding feature is said to



be the planetary steering system which permits turns while maintaining full power on all four drive wheels. This system is operated by air-pressure controls triggered by conventional steering levers, and it not only extends the flexibility of the machine's push-power but it also, without special attention by the operator, adjusts the sharpness of turn to the forward speed automatically, thus providing safe, sure control under all conditions.

Accessibility of components and assembly parts has been provided in the design by access plates to speed up servicing and maintenance. It is said that most components can be removed without disturbing assembly of other elements.

Also, that normal lubrication can be made in 10 min and 1,000-hour checks can be made in less than 30 min.

Work tools available for the "D" Tournatractor include an 8-ft bulldozer, an 8½-ft snow plow and a double-drum power-control unit. Both the dozer blade and the snow plow mount on the same push arms and use hydraulic control. The me-

chanical power control unit, which equips the "D" to handle scraper and other cable-controlled equipment is rear mounted.

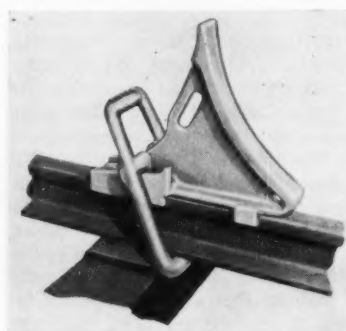
Standard equipment includes: electric starting, head and tail lights, adjustable seat, hand throttle, fuel filter, muffler and all necessary meters and gages.

Cab with or without heater and defrosters is an optional extra. *LeTourneau - Westinghouse Company, Dept. RA, Peoria, Ill.* •

Portable Car Stop

... comes in two sizes

A quick-setting portable car stop, which can be easily moved from one spot to another, or from one track to another, is the Porta-Stop. This device comprises three pieces, a heat-treated steel top casting, weighing 40 lb, which engages the car wheel, and two interlocking yokes weighing 10 lb each. The manufacturer states that a pair of Porta-Stops can be installed on a track in one minute by one man, because no tools are needed nor are there any bolts to be tightened. When installing this device, the top steel casting is set upright on the rail head and the two identical parts of the link are fitted together under the rail and positioned so that their



projecting lugs engage tapered channels on the sides of the top casting. Porta-Stops come in two sizes, one for rail up to 110-lb, another for 110-lb rail and heavier. *Western Railroad Supply Company, Dept. RA, 2428 S. Ashland ave., Chicago 8.* •

(More equipment news on page 50)

a three
way
combination
to greater
savings...



DOUBLE SEAL RINGS
Cast from GUN IRON for longest wear and designed with wide face to eliminate piston slap. Other features include double seal action and a flexibly bonded sealing tongue that eliminates breakage.



AIR COMPRESSOR CYLINDER
Cast from GUN IRON for longest wear and designed with 42% greater cooling area for lower operating temperatures. Lower operating temperatures reduce condensation and carboning of valves.

AIR COMPRESSOR PISTON

Cast from GUN IRON for longest wear and designed to receive wide faced Hunt-Spiller Double Seal Rings for improved oil control and smoother operation.



HUNT-SPILLER REPLACEMENT PARTS

The air compressor parts shown here are all cast from Hunt-Spiller GUN IRON . . . a dense cast iron that is melted under rigid metallurgical control. Its properties, found in no other metal, provide long life and highest resistance to wear. In addition, these replacement parts incorporate many unique design details. Specify *all three Hunt-Spiller replacement parts*, and attain all of these money saving advantages:

- Highest resistance to wear
- Reduced operating temperatures
- Minimum carryover of oil and moisture
- Less carboning of valves

Write for Bulletin H-I "Gun Iron, Your Key to Lower Cost"



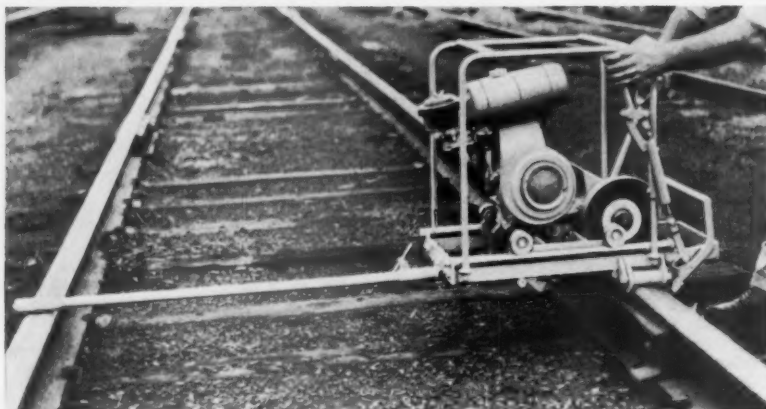
HUNT-SPILLER

MANUFACTURING CORPORATION

383 DORCHESTER AVENUE • BOSTON 27, MASSACHUSETTS

CANADIAN REPRESENTATIVE
Joseph Robb & Co., Ltd., 4050 Namur St., Montreal 16, P.Q.

EXPORT AGENTS
International Rwy. Supply Co., 30 Church St., New York 7, N.Y.



Cross Grinder

... for out-of-face welds

Designated Model X-60, a light-weight cross grinder has been developed for removing overflowed metal at rail joints. It is designed particularly for use by out-of-face rail-end welding crews for cross grinding rail ends behind the welding work. The machine is completely insulated. As it weighs approximately 130 lb, one man can place the machine in working position or remove it from the track when clearing for traffic.

It is powered by a 4-cycle engine, developing 3.4 hp, which is mounted on compressed-rubber

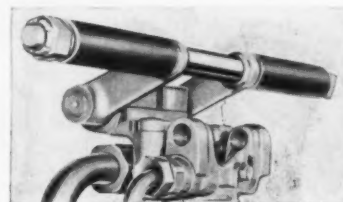
bushings on a rocker base for reducing wear and vibration to a minimum. A V-belt drives unit.

Model X-60 is brought into alignment with the rail joint by a hand-actuated lock-control lever mounted on the upper frame. The latter is so constructed that the machine can be overturned in a rolling motion for quick emergency removal. The transverse action of both the grinding head and grinding wheel is held in positive alignment by spool-type rollers operating over guide bars. All rollers are equipped with anti-friction bearings and are adjustable for wear. *Railway Track-Work Company, Dept. RA, 3207 Kensington ave., Philadelphia 34 •*

ment or replacement. The new model is propelled by a 4-cylinder water-cooled engine, and two separate brake systems are provided—a service brake for use while operating the machine and a hand-wheel-operated brake for parking and emergency.

As in the previous model, three burners are provided and the two outer ones can be raised, lowered, or swung in and out by controls within the cab. The burners can be used collectively or individually, and electric ignition is provided on each one. A separate 15-hp air-cooled engine is used to drive the blower.

This permits the speed of the blower to remain constant while the travel speed of the machine can be varied to suit vegetative conditions on the open track, in yards, or when melting snow at switches. *Woolery Machine Company, Dept. RA, 29th and Como ave., S. E., Minneapolis 14, Minn. •*

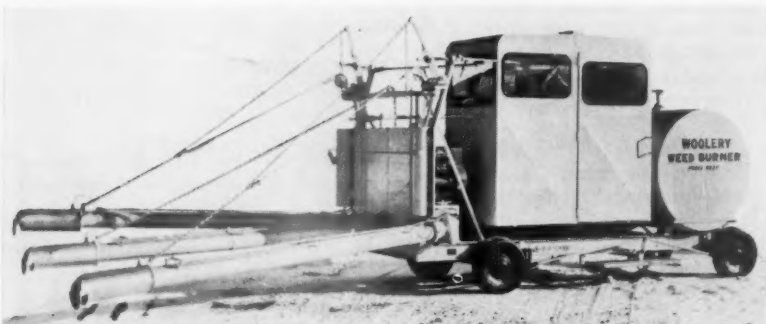


Rock-Drill Handle

... absorbs vibration

Designed to absorb recoil and vibration, a new handle has been made available for use with LeRoi-Cleveland H-10, H-12 and H-111 hand-held rock drills. The shock-absorbing handle is said to reduce operator fatigue, resulting in more efficient tool operation and higher output at the finish of a day's drilling.

Rubber cushions have been incorporated in the mechanism of the new handle for absorbing vibration, and handle adjustment may be made to suit the operator's desired degree of dampening. The new handle is now standard on the three drills mentioned, and modification kits are available for equipping former models of these drills with the new handle. *Le Roi Division, Westinghouse Air Brake Company, Dept. RA, Milwaukee 1, Wis. •*



Improved Weed Burner

... has torque converter

Woolery's Model WB-2-F weed burner, which supersedes former Model WBF, includes some new

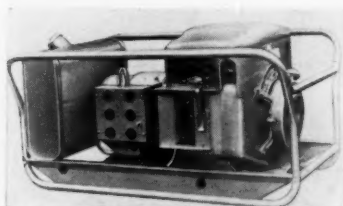
features. These include: An all-steel cab equipped with safety-glass windows; automatic transmission with torque converter; and a final drive of chains and sprocket located outside of the wheels for easy adjust-

Tie-Spacing Machine

... is self-propelled

Another maintenance-of-way operation may now be mechanized, using a lightweight self-propelled machine, the Pullman-standard tie spacer. The new machine is designed to perform all tie-spacing functions, including: Out-of-face spacing where the number of ties per rail is changed; straightening and spacing of ties ahead of the tamping operation in track-surfacing jobs; and spacing and straightening new and old ties in heavy tie-renewal operations. The tie spacer also can be utilized to nip and hold ties while spiking.

The manufacturer states that the first unit of this new machine will go into operation early during the 1957 working season. Pullman-Standard Car Manufacturing Company, Dept. RA, 221 N. LaSalle st., Chicago 1 •



Portable Power Plant

... has 5,000-watt capacity

The Model 5CCK-115P generating plant, delivering 5,000-w, d-c current at 115 v, has been made available as a portable power source for lights, electric tools and universal motors. It is powered by a 2-cylinder gasoline engine of the opposed-piston type producing 12.9 hp at 2,700 rpm. The generator is directly connected to the engine for permanent alignment and has a six-receptacle outlet and pilot light. The entire outfit is mounted with a 6-gal fuel tank in a combination guard and carrying frame. A two-wheel dolly mounting is available at extra cost. It is furnished with a Readi-Pull rope starter. The outfit is said to be light in weight, easy to start, and economical to operate, consuming 1.2 gal of fuel per hour at full-rated load. D. W. Onan & Sons, Inc., Dept RA, 3903 University ave., S. E., Minneapolis, Minn. •

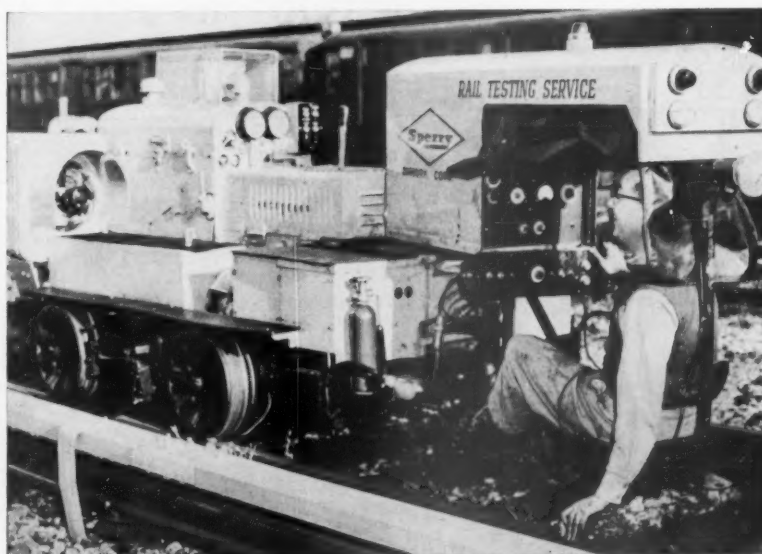


Reversible Wings

... for Ballast Regulator

Ballast may now be equalized on shoulders by the Ballast Regulator when traveling in either direction. The new reversible wing assembly will fit any Ballast Regulator now in use and can be interchanged easily with any of the present wing-assembly types.

The reversible wing, according to the manufacturer, scarifies foul ballast, plows ballast from tie ends to provide drainage, reclaims ballast from the toe line, deweeds and removes vegetation from ballast, regulates and shapes the center lane in double-track in either direction, and transfers ballast from shoulder to heads and centers. Kershaw Manufacturing Company, Dept. RA, P. O. Box 510, Montgomery, Ala. •



Rail Tester

... modified for subway service

The Sperry ultrasonic detector car for testing rails within the joint bar limits has been modified for use on the New York subway system. Several modifications of the equipment were necessary to meet the requirements. Grades ranging up to 7 per

cent necessitated a complete change in the propulsion equipment. Certain subway track structures interfered with the positioning equipment. Catalytic mufflers were installed for the elimination of fumes and the former gasoline-powered assembly was replaced by a diesel unit. Basic testing equipment, remains the same. Sperry Rail Service, Dept. RA, Danbury Conn. •

40 YEARS OF PRACTICAL RAILROADING EXPERIENCE AND RESEARCH
MADE THE
ESPEY
LUBRICATION PAD

PATENTS PENDING

THE MOST EFFICIENT, LONG-LIVED
LUBRICATION PAD AVAILABLE...

No other pad offers these features

Each one an absolute necessity for effective,
constant journal lubrication!

1. The outside covering practically refuses to "wear out"—it's a specially designed Espey pad feature that "hungers" for oil and generously "feeds" it to the journal for the most positive protection at all times.

2. Maintains its oil transmitting properties for the long, long life of the Espey pad. The specially treated felt won't deteriorate.

3. A "flood" of oil from the box to the journal for complete, continuous lubrication—Espey's sturdy large-sized wicks feed an abundance of oil.



SPRING PACKING



4. Never-varying maximum pad pressure against the journal—the exclusive Espey spring-steel construction is the answer. Does not take a permanent "set".

It's a *fact* . . . the Espey pad will wear longer and wick more oil than *any* other pad—and for good reason. You can't beat 40 years of Spring Packing journal box lubrication experience—40 years of quality and service. Remember? . . . the first big improvement in journal box lubrication, in 1936, when Spring Packing developed Hold-Rite retainers to hold packing and prevent waste grab. Now in 1957, these years of practical cooperative railroading experience resulted in the Espey Pad—designed by Espey engineers; made in the new Espey plant.

CORPORATION

332 South Michigan Avenue, Chicago, Illinois.
Espey Lubrication Pad Plant at Hammond, Indiana

WHAT'S NEW in railway engineering and maintenance

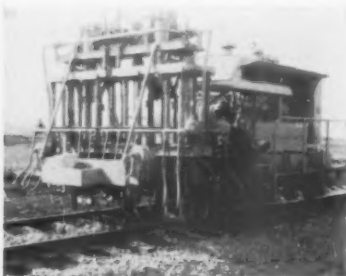
Rail-Joint Coating

... lasts three years

A spray coating for protection of rail joints, turnouts, switches and railroad crossings has the trade name No-Ox-Id "201." It is said to have a non-drying viscous modified-oil consistency and excellent penetrating qualities, and leaves a heavy dark-brown oil film.

It has a high-viscosity cylinder-stock oil base with a combination of selected rust inhibitors, wetting agents, and necessary carrier for spraying at normal temperatures.

According to the manufacturer, it will pour at 22 deg F, dust and dirt will collect over the coating to add to the protection, and a one-coat application of the material will give outdoor protection for three years. *Dearborn Chemical Company, Dept. RA, Merchandise Mart Plaza, Chicago 54 •*



Tie Tamper

... has new cam design

Small raises and spot surfacing work are now possible with the McWilliams Multiple Tie Tamper because of an improved cam design and a new tamping-gun design. The new cam is designed specifically for spot surfacing and low raises. The new tamping gun increases the foot-pound blow from 7.5 to 11.5 while the consumption of air is said to increase only 3.5 cfm. In combination they are said to produce a more tightly packed ballast pattern under the tie in much less time than was heretofore possible.

The manufacturer states that the machine will now produce a quality tamping job on spot surfacing or a

raise of one inch at the same speed as was formerly obtained on raises equal to the size of the ballast used and without damage to the ballast. On jobs where the track is being raised an amount equal to the size of the ballast, it is said the tamper will tamp one-third more ties per hour than formerly and, at the same time, produce a tighter-packed pattern of tamping.

The new gun also is designed with a spring retainer which replaces the former rubber bushing and provides a positive alinement for the tamping bar, as well as enabling the tamping bar to be replaced easier and quicker than was formerly possible. The size of the tamping bar shank also has been increased for additional strength and wear. Gasket seals between the gun and its mounting have been replaced with "O" rings to provide a lifetime seal and eliminate leakage. *Railway Maintenance Corporation, Dept. RA, P. O. Box 1888, Pittsburgh, Pa. •*

Wrecker-Pile Driver

... is a combination machine

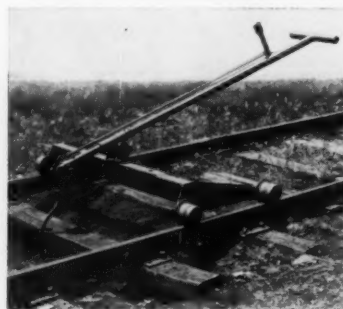
For roads which cannot justify the purchase of single-purpose machines, a combination diesel-powered wrecker, pile driver and bridge derrick is now available in capacities ranging from 75 to 250 tons. This combination machine originated in a 160-ton unit purchased by the Minneapolis & St. Louis, the design of which was developed with the cooperation of that road's president, A. W. Schroeder; vice president of operations, W. P. Coliton; superin-



tendent mechanical equipment, W. W. Landmesser; chief engineer, S. J. Owens; and bridge engineer, D. I. Kjellman.

This machine is equipped with a straight boom for wrecker purposes, yet it is long enough to be used as a bridge derrick and has a 50-ton whip fall-block for that purpose. Pendent pile-driver leads are furnished, which permit batter in both directions, and these fold automatically when the boom is lowered. The leads can be equipped with an air-operated or diesel-operated pile hammer.

The machine lowers heavy loads against a torque converter and is constantly under power control. It is equipped with a worm-gear boom hoist so that it is impossible for the boom to lower accidentally. The unit is operated by one man with air-operated controls in a full-vision cab having an outside rear-vision mirror. This is said to allow full concentration on the load but with constant surveillance of the tail swing. *Orton Crane & Shovel Co., Dept. RA, 608 So. Dearborn st., Chicago 5 •*



Tie Nipper

... is more powerful

More power is said to be incorporated in the W83 Tie Nipper, now known as Series B. The improvements include a handle made of stronger stock and 2 ft longer for greater leverage and reach; a wheel-base almost 50% longer for better tracking; and a crossbeam having three mounting locations for the handle assembly. The latter feature permits the use of two handle-and-hook assemblies when greater power is needed. *Fairmont Railway Motors, Inc., Dept. RA, Fairmont, Minn. •*

People in the News

CENTRAL OF GEORGIA.—Mike Powell, foreign freight traffic manager, New York, appointed special representative and foreign traffic manager, Washington, D.C., having contacts with the Department of Defense, General Services Administration, Department of Agriculture, and the various branches and installations of these departments, and with all other agencies of the federal government. **W. Lawrence Durrett**, foreign freight agent, New York, appointed general foreign freight agent there. **W. B. Tiebout** succeeds Mr. Durrett as foreign freight agent at New York. **E. B. Shearouse** named general agent, Washington.

DEPARTMENT OF COMMERCE.—Alfred V. Vallandigham is the new secretary of the Transportation Council of the United States Department of Commerce. He succeeds the late E. F. Lacey. The council is a non-governmental advisory group which provides the undersecretary of commerce for transportation with advice and consultation. Mr. Vallandigham retired January 25 from the staff of the Interstate Commerce Commission, where he was chief, Section of Reports, Bureau of Transport Economics and Statistics. He has been affiliated with transportation for about 48 years, 24 with the federal government and 24 with carriers.

GEORGIA & FLORIDA.—Has announced opening of an Industrial Development Department at Atlanta, Ga. **W. K. Beebe** appointed director of development.

Roy Moss named freight traffic manager, sales and service, Augusta, Ga.

INTERSTATE COMMERCE COMMISSION.—Paul J. Reider, assistant chief, Car Service Section, Washington, D.C., appointed acting chief of that section and acting assistant director, Bureau of Safety and Service, succeeding the late Charles L. Harrison.

The Senate has confirmed President Eisenhower's reappointments of **Richard F. Mitchell** and **Laurence K. Walrath** for new seven-year terms on the ICC. The terms expire December 31, 1963. Commissioner Mitchell has been a member of the ICC since 1947. Commissioner Walrath's service began early last year, when he was appointed for the remaining months of the term of **Martin K. Elliott**, who resigned.

LONG ISLAND.—Otto M. Buerger appointed general counsel; **William J. O'Brien**, general solicitor; **William McNamara** and **William A. Colton**, general attorneys; **Henry B. Staples**, **George M. Onken** and **Paul J. Donnelly, Jr.**, assistant general counsel; **James T. Gallagher**, **Richard H. Stokes** and **Angelo Granatelli**, assistant general solicitors.

NEW YORK CENTRAL.—The following trainmasters appointed: **H. F. Carey**, Mohawk—

Hudson division, Utica, N.Y.; **A. J. Conklin**, Syracuse—Rochester division, Rochester, N.Y.; **W. V. Hayes**, Mohawk—Hudson division, Albany, N.Y.; and **R. B. Hasselman** and **E. C. Rowell**, Syracuse—Rochester division, Syracuse, N.Y. **R. E. MacDonald** named trainmaster—general yardmaster, Mohawk division, Utica.

William J. Haggerty appointed assistant manager of stores, in charge of materials and supplies; **Chalmers E. Miller** named assistant manager of stores, in charge of systems and procedures, both at New York.

Thomas W. English appointed general manager of the Peoria & Eastern, NYC affiliate, with headquarters at Indianapolis, succeeding **Louis R. Jabinson**, retired. **Frank K. Mitchell, Jr.**, named superintendent of the NYC's Indiana division, replacing Mr. English, and in turn is succeeded as assistant superintendent, Indiana division, by **R. K. Pattison**, division engineer, Mattoon, Ill.

W. F. Collins, chief of engineering services at New York, appointed assistant director of technical research there, and his former position abolished. **J. A. Smith** named manager, research laboratory, and **T. R. Fredriks** appointed manager, research group, Collinwood, Ohio. **H. T. Rockwell**, **R. H. Wright**, **L. C. Simmons**, **C. H. Derner** and **G. L. Rundel** named research engineers; **W. S. Beaugerard** appointed petroleum research engineer and **W. F. Freese**, junior research engineer, all at Collinwood.

William R. Noll appointed manager, rate bureau, New York, succeeding **Ross L. Keefe**, who retired January 31. **Mark L. Kelly** appointed assistant freight sales manager, Cleveland, Ohio, succeeding the late **E. G. Howard**. **George M. Harrington** named assistant district freight sales manager, Baltimore, Md.

Karl A. Borntrager, senior vice-president, New York, retired January 31.

Edwin T. Scheper appointed auditor of freight revenue at Detroit.

John J. Keating, assistant master mechanic, locomotive department, Collinwood, appointed master mechanic, locomotive department, Toledo, Ohio. **Vaughn E. Scott**, appointed master mechanic, locomotive department, Columbus, Ohio.

Harry M. Washer named trainmaster at Cleveland.

NICKEL PLATE.—**H. Horton Hampton**, vice-president—industrial development, Cleveland, Ohio, retires March 1 and that department will be under jurisdiction of the vice-president—traffic, under supervision of **Martin H. Markworth**, industrial commissioner.

PENNSYLVANIA.—**Arnold L. Berwanger**, assistant trainmaster—assistant road foreman of engines, Phillipston, Pa., named supervisor of personnel, Buckeye Region, to succeed **A. C. Retzsch**, on sick leave.

The office of **W. M. Anthony**, district sales manager, is now in Pennsylvania Station, Raymond Plaza, Newark 5, N. J.

PENNSYLVANIA-READING SEASHORE LINES.—**W. M. Hansford**, passenger representative, appointed general freight and passenger agent, Camden, N.J., effective March 1, succeeding **Ira L. Fish**, who is retiring.

PULLMAN COMPANY.—Effective April 1, general offices will be in the Canal-Randolph Building, 165 N. Canal street, Chicago.

RAILROAD RETIREMENT BOARD.—The Senate has confirmed President Eisenhower's appointment of **Howard W. Habermeyer** as public member and chairman of the RRB. Mr. Habermeyer has been serving under a so-called recess appointment, made while the Senate was not in session. He succeeded **Raymond J. Kelly** for the remainder of a term which will expire next August 28.

WABASH.—**C. J. Brandau**, auditor, appointed general auditor; **L. J. Mottel** named assistant to general auditor, succeeding **I. H. Soldwish**, promoted to auditor, all at St. Louis, Mo.

YMCA TRANSPORTATION DEPT.—**E. Russell Babcock** appointed traveling secretary, Room 250, Union Station, Washington 2, D. C. **Wade H. Stillwagon** named traveling secretary, 201 South 20th Street, St. Louis 3, Mo.

Supply Trade

Walter C. Byrne, Jr., midwestern district sales manager of **Motorola, Inc.**, has been promoted to sales manager of the microwave and industrial control department, responsible for nationwide direct sales.

Reginald L. Johnson has been elected vice-president of **Johns-Manville Sales Corporation**. As sales promotion manager, he will head up all Johns-Manville advertising and sales promotion activities, succeeding **H. M. Shackelford**, retired. Mr. Johnson was previously senior advertising manager.

Union Switch & Signal—Division of Westinghouse Air Brake Company has announced the appointments of **C. W. Henricks** as general sales manager, at Pittsburgh; **J. W. Hansen** as manager, sales promotion and advertising; **H. A. Talbert** as Pittsburgh district manager; **M. R. Waller** as Chicago district manager; and **T. B. Thompson** as New York district manager. Mr. Henricks was New York district manager; Mr. Hansen was manager, advertising and publicity; Mr. Talbert, assistant district manager at New York; Mr. Waller, Pittsburgh district manager; and Mr. Thompson, Chicago district manager. The new appointments are effective March 1.

Harold R. O'Connor has been appointed manager of railway sales of **W. K. Davidson & Company, Ltd.**, of Montreal, Que. Mr. O'Connor was formerly assistant chief draftsman (car) of the Canadian National.

Earl W. Ball, assistant manager, railroad sales division of **Esso Standard Oil Company**, has been appointed manager of the division, effective March 1. Mr. Ball succeeds **Frederick C. Davern**, who is retiring.



Thomas W. English
NYC



Frank K. Mitchell, Jr.
NYC



Earl W. Ball



Harold R. O'Connor



*Next time you order—specify
and insist on The Improved
GAUTIER Rail Anchor*



STRENGTH—The Improved Gautier is a heavy one piece rail anchor made of tough Alloy Spring Steel.

DURABILITY—The Improved Gautier is a rugged, sure-gripping anchor that has sufficient take-up so that it can be used again and again on new or used rail.

ECONOMY—The Improved Gautier can be applied with a maul or spike maul and can't be overdriven. It distributes the weight load evenly relieving stresses and strains, reducing maintenance of way and operating costs.

MID-WEST FORGING & MANUFACTURING COMPANY

General Offices, 38 S. Dearborn St., Chicago 3, Ill. ● Manufacturing Plant, Chicago Heights, Ill.

Distributors: D. V. MAHER, Cleveland, Ohio; MILTON W. ALLEN, Denver, Colorado; JOHN O'BRIEN, St. Paul, Minnesota
W. T. RICHARDS, ROBERT A. BAER, San Francisco, California; H. B. HARRISON, Chicago, Illinois

- Suez crisis has pointed up petroleum-availability problem and has even caused price rises in U. S.
- Increased cost of diesel fuel — and possibility of short supply — makes even more important railroads' search for ways to cut consumption.
- Alco locomotives offer to railroads significant fuel savings now.

YOU GET THE MOST POWER PER GALLON FROM ALCO LOCOMOTIVES

Last year U. S. railroads burned well over 3½-billion gallons of diesel fuel and paid \$350 million in diesel fuel bills. In figures of that size any saving is significant. ALCO locomotives provide that saving because they use diesel fuel more efficiently. ALCO's modern turbocharged four-cycle diesel engine and advanced electric transmission get the most ton-miles per gallon of fuel.



ALCO

ALCO PRODUCTS, INC

NEW YORK

Sales Offices in Principal Cities

REVENUES AND EXPENSES OF RAILWAYS

(Dollar figures are stated in thousands; i.e., with last three digits omitted)

MONTH OF DECEMBER AND TWELVE MONTHS OF CALENDAR YEAR 1956

| Average mileage operated during period | Name of Road | Operating Revenues | | | Operating Expenses | | | Net from railway operation | Railway tax operating income | Net Railway income 1956 |
|--|-----------------------------------|--------------------|---------|--------------------|--------------------|-----------------------------------|-----------------------|-------------------------------------|---------------------------------------|-------------------------------|
| | | Freight | Pass. | Total (inc. misc.) | Total | Retire- ment and deprec. | Maint. Equip- ment | | | |
| 1956 | 1955 | 1956 | 1955 | 1956 | 1955 | 1956 | 1955 | 1956 | 1955 | 1955 |
| Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. |
| 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. |
| 171 | 171 | 4,919 | 4,919 | 4,919 | 4,919 | 4,919 | 4,919 | 4,919 | 4,919 | 4,919 |
| 171 | 171 | 4,919 | 4,919 | 4,919 | 4,919 | 4,919 | 4,919 | 4,919 | 4,919 | 4,919 |
| 13,150 | 13,150 | 40,403 | 40,403 | 40,403 | 40,403 | 40,403 | 40,403 | 40,403 | 40,403 | 40,403 |
| 13,129 | 13,129 | 491,463 | 491,463 | 491,463 | 491,463 | 491,463 | 491,463 | 491,463 | 491,463 | 491,463 |
| 82 | 82 | 323 | 323 | 323 | 323 | 323 | 323 | 323 | 323 | 323 |
| Atlanta & St. Andrews Bay | Atlanta & St. Andrews Bay | 4,306 | 5 | 4,368 | 4,053 | 498 | 434 | 35 | 364 | 314 |
| Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. |
| 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. |
| 93 | 93 | 244 | 35 | 341 | 365 | 59 | 55 | 8 | 61 | 65 |
| Atlanta & West Point | Atlanta & West Point | 3,092 | 365 | 4,072 | 3,563 | 555 | 480 | 79 | 784 | 689 |
| Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. |
| 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. |
| 133 | 133 | 274 | 33 | 351 | 361 | 68 | 74 | 18 | 74 | 71 |
| Western of Alabama | Western of Alabama | 3,390 | 339 | 4,204 | 3,644 | 614 | 606 | 102 | 856 | 775 |
| Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. |
| 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. |
| 5,292 | 5,292 | 11,330 | 1,726 | 14,539 | 15,109 | 1,904 | 1,713 | 247 | 2,444 | 2,083 |
| Atlantic Coast Line | Atlantic Coast Line | 17,369 | 166,630 | 158,892 | 28,490 | 27,943 | 2,061 | 35,568 | 32,637 | 7,239 |
| Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. |
| 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. |
| 343 | 343 | 643 | 656 | 617 | 80 | 145 | 109 | 25 | 102 | 109 |
| Charleston & Western Carolina | Charleston & Western Carolina | 3,455 | 1,882 | 39,002 | 36,923 | 4,211 | 6,652 | 159 | 7,222 | 8,191 |
| Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. |
| 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. |
| 6,019 | 6,019 | 416,478 | 18,877 | 465,485 | 432,062 | 6,056 | 54,946 | 62 | 33 | 27 |
| Baltimore & Ohio | Baltimore & Ohio | 29 | 189 | 64 | 259 | 262 | 46 | 62 | 33 | 27 |
| Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. |
| 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. |
| 1,571 | 1,571 | 5,362 | 927 | 7,075 | 7,385 | 1,488 | 1,005 | 233 | 1,258 | 1,088 |
| Boston & Maine | Boston & Maine | 67,941 | 10,349 | 88,039 | 85,907 | 12,567 | 12,210 | 1,870 | 11,472 | 10,895 |
| Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. |
| 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. |
| 234 | 234 | 562 | 36 | 630 | 533 | 114 | 132 | 19 | 109 | 118 |
| Canadian Pacific Lines in Maine | Canadian Pacific Lines in Maine | 612 | 52,129 | 5,921 | 62,434 | 57,870 | 8,493 | 8,491 | 1,800 | 10,870 |
| Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. |
| 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. |
| 284 | 284 | 255 | 3 | 260 | 314 | 63 | 47 | 9 | 10 | 17 |
| Carolina & Northwestern | Carolina & Northwestern | 3,771 | 155 | 3,839 | 3,489 | 732 | 788 | 82 | 207 | 197 |
| Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. |
| 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. |
| 1,764 | 1,764 | 3,091 | 155 | 3,625 | 3,860 | 569 | 602 | 51 | 671 | 610 |
| Central of Georgia | Central of Georgia | 39,604 | 1,800 | 44,785 | 43,159 | 6,999 | 6,975 | 563 | 7,438 | 7,174 |
| Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. |
| 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. |
| 612 | 612 | 4,466 | 507 | 5,390 | 5,157 | 737 | 1,127 | 121 | 919 | 851 |
| Central of New Jersey | Central of New Jersey | 5,921 | 62,434 | 57,870 | 8,493 | 8,491 | 1,800 | 10,870 | 9,688 | 1,096 |
| Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. |
| 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. |
| 383 | 383 | 901 | 55 | 1,069 | 996 | 119 | 355 | 16 | 95 | 100 |
| Central Vermont | Central Vermont | 9,984 | 727 | 11,899 | 10,956 | 2,556 | 2,599 | 195 | 1,255 | 1,213 |
| Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. |
| 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. |
| 5,132 | 5,132 | 32,114 | 677 | 34,644 | 31,869 | 5,272 | 5,222 | 428 | 6,470 | 6,470 |
| Chesapeake & Ohio | Chesapeake & Ohio | 389,279 | 7,288 | 418,728 | 380,281 | 49,338 | 46,872 | 4,897 | 69,898 | 64,914 |
| Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. |
| 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. |
| 862 | 862 | 2,634 | 273 | 3,273 | 3,100 | 422 | 298 | 12 | 493 | 503 |
| Chicago & Eastern Illinois | Chicago & Eastern Illinois | 31,992 | 2,663 | 37,631 | 34,455 | 4,574 | 4,364 | 332 | 6,228 | 5,814 |
| Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. |
| 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. |
| 121 | 121 | 753 | 589 | 677 | 677 | 36 | 35 | 29 | 44 | 125 |
| Chicago & Illinois Midland | Chicago & Illinois Midland | 7,517 | 3 | 7,517 | 6,717 | 658 | 724 | 129 | 1,221 | 1,397 |
| Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. |
| 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. |
| 7,787 | 7,787 | 10,762 | 1,628 | 14,318 | 15,557 | 1,158 | 2,006 | 328 | 2,055 | 3,043 |
| Chicago & North Western | Chicago & North Western | 155,626 | 17,456 | 193,140 | 198,718 | 30,164 | 29,481 | 3,880 | 35,397 | 34,663 |
| Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. |
| 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. |
| 8,804 | 8,804 | 19,405 | 1,963 | 21,679 | 21,008 | 2,606 | 3,365 | 501 | 3,504 | 3,057 |
| Chicago, Burlington & Quincy | Chicago, Burlington & Quincy | 20,226 | 257,032 | 249,226 | 35,749 | 37,759 | 5,281 | 42,791 | 39,150 | 10,908 |
| Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. |
| 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. |
| 1,470 | 1,470 | 2,796 | 0 | 3,009 | 3,170 | 511 | 464 | 20 | 417 | 513 |
| Chicago Great Western | Chicago Great Western | 1,616 | 2,153 | 89 | 2,916 | 2,59 | 3,678 | 50 | 3,367 | 500 |
| Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. |
| 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. |
| 10,628 | 10,628 | 16,272 | 1,690 | 20,341 | 20,170 | 2,852 | 3,111 | 412 | 3,912 | 3,232 |
| Chicago, Mil., St. Paul & Pacific | Chicago, Mil., St. Paul & Pacific | 209,720 | 17,174 | 253,861 | 245,498 | 42,707 | 44,255 | 5,045 | 45,971 | 47,945 |
| Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. |
| 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. |
| 7,597 | 7,597 | 12,945 | 1,817 | 16,474 | 15,346 | 1,836 | 1,933 | 193 | 2,667 | 2,800 |
| Chicago, Rock Island & Pacific | Chicago, Rock Island & Pacific | 161,787 | 17,688 | 200,020 | 189,362 | 27,461 | 26,422 | 2,897 | 33,662 | 31,314 |
| Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. |
| 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. |
| 1,470 | 1,470 | 2,796 | 0 | 3,009 | 3,170 | 511 | 464 | 20 | 417 | 513 |
| Chic., St. Paul, Minn. & Omaha | Chic., St. Paul, Minn. & Omaha | 1,616 | 2,153 | 89 | 2,916 | 2,59 | 3,678 | 50 | 3,367 | 500 |
| Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. |
| 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. | 12 mos. |
| 10,628 | 10,628 | 16,272 | 1,690 | 20,341 | 20,170 | 2,852 | 3,111 | 412 | 3,912 | 3,232 |
| Clinchfield Railroad | Clinchfield Railroad | 293 | 25,091 | 25,230 | 19,997 | 3,270 | 2,892 | | | |

REVENUES AND EXPENSES OF RAILWAYS

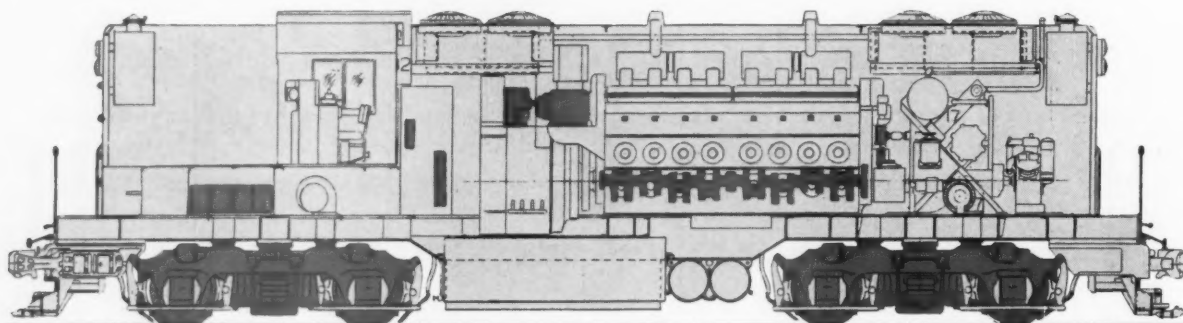
(Dollar figures are stated in thousands; i.e., with last three digits omitted)

MONTH OF DECEMBER AND TWELVE MONTHS OF CALENDAR YEAR 1956

| Average mileage operated during period | Name of Road | Operating Revenues | | | | Maint. Way and Structures | | | | Operating Expenses | | | | Net | | | | | | | | |
|--|-------------------------------------|--------------------|---------|---------|---------|---------------------------|--------|--------|-------|--------------------|--------|-------|--------|-----------------|---------|-------------|-------|--------------------|--------|--------|--------|--------|
| | | Total (inc. misc.) | | Freight | | Total | | Total | | Total | | Total | | Operating ratio | | Railway tax | | Net Railway income | | | | |
| | | 1956 | 1955 | 1956 | 1955 | 1956 | 1955 | 1956 | 1955 | 1956 | 1955 | 1956 | 1955 | 1956 | 1956 | 1955 | 1956 | 1955 | | | | |
| Dec. | Colorado & Wyoming..... | 40 | 246 | 364 | 338 | 10 | 76 | 1 | 32 | 30 | 363 | 11 | 153 | 217 | 240 | 59.7 | 71.1 | 147 | 79 | 63 | 37 | |
| 12 mos. | | 40 | 2,386 | 3,836 | 3,758 | 306 | 447 | 23 | 390 | 360 | 133 | 133 | 18 | 1,412 | 2,390 | 60.1 | 69.9 | 1,531 | 809 | 605 | 629 | |
| Dec. | Delaware & Hudson..... | 771 | 4,389 | 1,773 | 4,401 | 480 | 547 | 133 | 683 | 813 | 180 | 91 | 1,721 | 3,315 | 3,250 | 70.3 | 73.8 | 1,411 | 633 | 872 | 928 | |
| 12 mos. | | 771 | 52,717 | 18,711 | 52,748 | 6,040 | 6,817 | 1,032 | 8,564 | 8,817 | 2,106 | 2,141 | 19,198 | 38,619 | 36,923 | 67.3 | 69.9 | 18,790 | 9,273 | 10,331 | 10,661 | |
| Dec. | Delaware, Lackawanna & Western..... | 962 | 70,773 | 9,726 | 88,786 | 82,691 | 10,168 | 13,342 | 1,734 | 13,111 | 12,417 | 3,964 | 2,404 | 43,562 | 73,639 | 70,786 | 82.9 | 85.6 | 15,147 | 5,597 | 8,164 | 2,629 |
| 12 mos. | | 962 | 70,773 | 9,726 | 88,786 | 82,691 | 10,168 | 13,342 | 1,734 | 13,111 | 12,417 | 3,964 | 2,404 | 43,562 | 73,639 | 70,786 | 82.9 | 85.6 | 15,147 | 5,597 | 8,164 | 2,629 |
| Dec. | Denver & Rio Grande Western..... | 2,155 | 75,696 | 2,291 | 81,355 | 78,393 | 3,552 | 4,205 | 1,300 | 1,076 | 998 | 293 | 236 | 2,077 | 4,028 | 3,951 | 57.1 | 59.3 | 3,032 | 1,431 | 1,525 | 1,330 |
| 12 mos. | | 2,155 | 75,696 | 2,291 | 81,355 | 78,393 | 3,552 | 4,205 | 1,300 | 1,076 | 998 | 293 | 236 | 2,077 | 4,028 | 3,951 | 57.1 | 59.3 | 3,032 | 1,431 | 1,525 | 1,330 |
| Dec. | Detroit & Toledo Shore Line..... | 50 | 743 | 806 | 875 | 902 | 920 | 42 | 837 | 790 | 261 | 254 | 254 | 256 | 388 | 357 | 48.1 | 43.2 | 418 | 153 | 137 | 191 |
| 12 mos. | | 50 | 743 | 806 | 875 | 902 | 920 | 42 | 837 | 790 | 261 | 254 | 254 | 256 | 388 | 357 | 48.1 | 43.2 | 418 | 153 | 137 | 191 |
| Dec. | Detroit, Toledo & Ironton..... | 464 | 1,764 | 1,829 | 1,965 | 56 | 154 | 26 | 123 | 360 | 92 | 48 | 48 | 2,460 | 780 | 1,136 | 42.7 | 39.6 | 1,452 | 835 | 1,328 | 1,352 |
| 12 mos. | | 464 | 19,931 | 20,775 | 21,039 | 2,760 | 3,165 | 356 | 3,991 | 3,469 | 1,101 | 637 | 5,310 | 13,676 | 13,303 | 65.8 | 63.2 | 7,099 | 2,298 | 4,683 | 6,635 | |
| Dec. | Duluth, Missabe & Iron Range..... | 566 | 1,926 | 2 | 2,332 | 706 | 604 | 414 | 97 | 734 | 745 | 134 | 134 | 2,177 | 3,921 | 2,994 | 168.2 | 325.1 | -1,589 | Cx. | 874 | -735 |
| 12 mos. | | 566 | 1,926 | 2 | 2,332 | 706 | 604 | 414 | 97 | 734 | 745 | 134 | 134 | 2,177 | 3,921 | 2,994 | 168.2 | 325.1 | -1,589 | Cx. | 874 | -735 |
| Dec. | Duluth, South Shore & Atlantic..... | 545 | 7,788 | 44 | 8,262 | 7,678 | 1,657 | 1,677 | 135 | 1,540 | 1,473 | 292 | 362 | 2,196 | 6,688 | 6,307 | 81.0 | 82.1 | 1,574 | 458 | 484 | 752 |
| 12 mos. | | 545 | 7,788 | 44 | 8,262 | 7,678 | 1,657 | 1,677 | 135 | 1,540 | 1,473 | 292 | 362 | 2,196 | 6,688 | 6,307 | 81.0 | 82.1 | 1,574 | 458 | 484 | 752 |
| Dec. | Duluth, Winnipeg & Pacific..... | 175 | 641 | 11 | 651 | 565 | 57 | 65 | 65 | 65 | 73 | 25 | 75 | 2,872 | 4,796 | 4,366 | 69.1 | 73.2 | 2,141 | 547 | 564 | 250 |
| 12 mos. | | 175 | 6,849 | 11 | 6,937 | 5,962 | 863 | 773 | 57 | 881 | 831 | 25 | 75 | 2,872 | 4,796 | 4,366 | 69.1 | 73.2 | 2,141 | 547 | 564 | 250 |
| Dec. | Elgin, Joliet & Eastern..... | 236 | 3,824 | 4 | 4,720 | 4,400 | 270 | 269 | 30 | 992 | 794 | 102 | 102 | 2,125 | 3,840 | 3,119 | 81.4 | 70.9 | 17,880 | 226 | 158 | 575 |
| 12 mos. | | 236 | 42,507 | 4 | 52,400 | 51,344 | 3,154 | 2,979 | 344 | 10,104 | 7,157 | 1,538 | 450 | 2,013 | 3,311 | 2,543 | 83.3 | 79.8 | 2,375 | 7,422 | 4,065 | 6,474 |
| Dec. | Erie..... | 2,207 | 12,551 | 667 | 14,245 | 13,989 | 1,436 | 1,208 | 308 | 2,266 | 2,316 | 538 | 375 | 7,000 | 11,870 | 11,162 | 83.3 | 79.8 | 2,375 | 7,422 | 4,065 | 6,474 |
| 12 mos. | | 2,218 | 155,811 | 7,216 | 175,900 | 161,448 | 20,555 | 19,378 | 2,783 | 25,960 | 25,323 | 6,148 | 4,654 | 77,601 | 137,694 | 128,047 | 78.3 | 79.3 | 38,296 | 13,966 | 15,313 | 15,068 |
| Dec. | Florida East Coast..... | 571 | 2,712 | 665 | 3,743 | 3,450 | 415 | 233 | 213 | 3,606 | 397 | 100 | 90 | 1,384 | 2,660 | 2,239 | 71.1 | 64.9 | 1,083 | 228 | 255 | 754 |
| 12 mos. | | 571 | 28,812 | 5,677 | 37,742 | 34,273 | 4,821 | 4,449 | 515 | 6,423 | 5,792 | 1,193 | 1,018 | 13,715 | 27,908 | 25,423 | 73.9 | 74.2 | 9,834 | 2,576 | 4,429 | 5,182 |
| Dec. | Georgia Railroad..... | 321 | 641 | 30 | 763 | 734 | 107 | 124 | -1 | 138 | 138 | 29 | 29 | 308 | 628 | 677 | 82.2 | 92.3 | 136 | 30 | 143 | 49 |
| 12 mos. | | 321 | 7,771 | 226 | 9,018 | 7,528 | 1,473 | 1,327 | 116 | 1,685 | 1,447 | 391 | 455 | 3,725 | 7,782 | 6,845 | 86.3 | 90.9 | 1,231 | 485 | 1,233 | 706 |
| Dec. | Georgia & Florida..... | 332 | 273 | ... | 278 | 311 | 73 | 86 | 4 | 28 | 39 | 8 | 19 | 96 | 231 | 254 | 83.0 | 81.4 | 47 | 18 | 9 | 18 |
| 12 mos. | | 332 | 3,487 | ... | 3,555 | 3,524 | 1,092 | 982 | 52 | 455 | 403 | 93 | 243 | 1,085 | 3,079 | 2,812 | 86.6 | 79.8 | 476 | 202 | 10 | 227 |
| Dec. | Grand Trunk Western..... | 951 | 4,467 | 250 | 5,598 | 5,427 | 549 | 598 | 62 | 861 | 709 | 93 | 108 | 2,662 | 4,406 | 4,340 | 78.7 | 80.0 | 1,192 | 383 | 356 | 265 |
| 12 mos. | | 951 | 55,134 | 2,893 | 62,828 | 61,670 | 7,857 | 7,313 | 811 | 11,496 | 9,117 | 1,125 | 1,067 | 30,684 | 53,674 | 47,557 | 85.4 | 77.1 | 9,155 | 4,516 | -1,426 | 4,689 |
| Dec. | Great Northern..... | 8,285 | 17,901 | 1,150 | 20,588 | 19,462 | 3,242 | 3,667 | 355 | 4,402 | 3,962 | 765 | 643 | 8,433 | 17,414 | 17,521 | 84.6 | 90.0 | 3,174 | 1,252 | 1,806 | 575 |
| 12 mos. | | 8,285 | 250,885 | 10,637 | 280,543 | 267,095 | 50,207 | 48,224 | 4,855 | 48,283 | 41,581 | 9,014 | 5,942 | 93,775 | 209,404 | 194,441 | 74.6 | 72.8 | 71,138 | 35,900 | 30,407 | 30,154 |
| Dec. | Green Bay & Western..... | 224 | 351 | ... | 360 | 353 | 15 | 62 | 8 | 48 | 54 | 9 | 22 | 107 | 216 | 268 | 60.1 | 76.6 | 1,231 | 542 | 362 | 424 |
| 12 mos. | | 224 | 4,393 | ... | 4,527 | 4,478 | 924 | 850 | 65 | 507 | 109 | 278 | 1,354 | 3,927 | 3,109 | 73.0 | 69.7 | 1,231 | 542 | 362 | 424 | |
| Dec. | Gulf, Mobile & Ohio..... | 2,757 | 6,264 | 1,111 | 7,189 | 6,064 | 1,064 | 1,064 | 65 | 1,312 | 1,314 | 109 | 278 | 2,500 | 3,760 | 5,529 | 80.1 | 79.0 | 1,430 | 414 | 587 | 787 |
| 12 mos. | | 2,757 | 74,311 | 3,956 | 84,927 | 83,759 | 12,084 | 12,693 | 933 | 16,138 | 15,727 | 3,466 | 3,463 | 27,007 | 63,124 | 61,171 | 73.1 | 73.9 | 20,968 | 8,357 | 7,524 | 9,831 |
| Dec. | Illinois Central..... | 6,503 | 20,062 | 2,180 | 24,622 | 25,810 | 3,252 | 3,034 | 428 | 4,038 | 3,969 | 798 | 643 | 9,589 | 18,622 | 17,741 | 75.6 | 68.7 | 6,000 | 3,172 | 2,083 | 3,393 |
| 12 mos. | | 6,517 | 248,876 | 21,986 | 298,419 | 294,525 | 45,200 | 43,809 | 5,460 | 50,363 | 48,081 | 9,526 | 7,068 | 106,959 | 222,528 | 213,307 | 74.6 | 72.4 | 75,891 | 40,870 | 28,010 | 32,230 |
| Dec. | Illinois Terminal..... | 339 | 872 | 28 | 1,038 | 1,002 | 121 | 60 | 19 | 176 | 234 | 41 | 50 | 420 | 839 | 796 | 80.8 | 79.5 | 199 | 82 | 43 | 93 |
| 12 mos. | | 348 | 11,246 | 366 | 13,296 | 12,251 | 1,635 | 1,656 | 262 | 2,182 | 2,143 | 487 | 569 | 4,109 | 9,943 | 9,665 | 74.8 | 78.9 | 3,353 | 1,334 | 1,323 | 615 |
| Dec. | Kansas City Southern..... | 491 | 3,223 | 143 | 3,693 | 4,068 | 242 | 400 | 56 | 464 | 394 | 95 | 95 | 368 | 731 | 735 | 55.5 | 56.7 | 19,992 | 635 | 532 | 735 |
| 12 mos. | | 491 | 41,747 | 1,237 | 47,008 | 45,385 | 4,425 | 4,000 | 599 | 5,688 | 5,436 | 1,117 | 1,196 | 13,995 | 27,013 | 25,841 | 51.5 | 56.7 | 19,992 | 635 | 532 | 735 |
| Dec. | Kansas, Oklahoma & Gulf..... | 327 | 393 | ... | 394 | 450 | 4 | 52 | 8 | 32 | 25 | 11 | 11 | 37 | 96 | 260 | 51.5 | 76 | 191 | 76 | 75 | 95 |
| 12 mos. | | 327 | 5,032 | ... | 5,046 | 4,841 | 955 | 639 | 103 | 359 | 336 | 136 | 136 | 136 | 136 | 136 | 136 | 136 | 136 | 136 | 136 | 136 |

Through Electro-Motive manufacturing A VETERAN FT IS CONVERTED

How it is done:



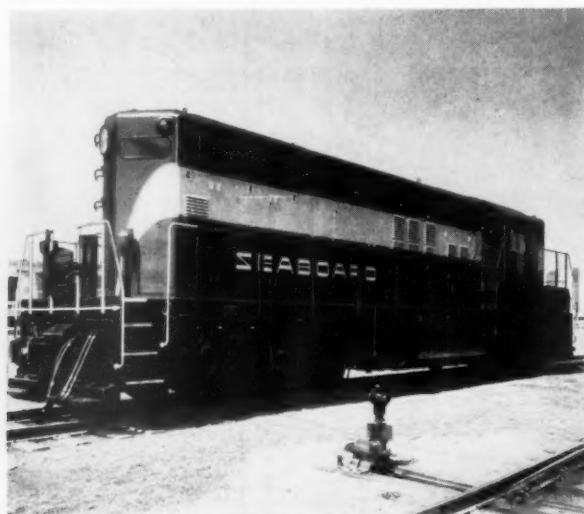
Indicated in red on this drawing of a GP9 are the parts that are used from the old FT. Only these parts are used. Through Electro-Motive factory facilities they are carefully inspected, remanufactured, modernized and assembled into a new locomotive.

This locomotive is manufactured as new, on our regular production line. The same processes and

inspection techniques used in new production are used to change the old FT to a GP9. These closely controlled factory methods are your assurance of highest quality—the reason the locomotive you get back carries the same warranty and performance standards as our regular production units.



Here is how one railroad's FT locomotive looked as it arrived at our La Grange plant for converting to a GP9. This same railroad has since launched a regular program to convert all their remaining FT's.



And this is the result. This GP9 has the work capacity, economy and low maintenance features of a brand-new locomotive. In addition, the GP9 has far more flexibility and utility than the old FT.

facilities — TO A MODERN GP9

The results:

Greater return on investment—as high as 30%

For the total cost of converting an FT to a GP9, the return on investment will run a minimum of 12½ per cent. Taking the additional cost alone of converting an FT to a GP9 as compared with merely rebuilding the FT in kind, the return on investment can be as high as 30 per cent for these two reasons:

1. Reduced maintenance costs — up to 35%

All the improvements in design and materials since the FT was built have been incorporated into the new GP9. In every important respect it is new—new power, increased performance, greater operating economy, and lower maintenance costs. Results show three GP9's will cost, on the average, thirty-five per cent less per locomotive mile to maintain than four FT's.

2. More work capacity and earning power — 3 do the work of 4

Tonnage Comparison

| MPH | 4FT's | 3GP9's |
|-----|-------|--------|
| 40 | 5,970 | 6,120 |
| 50 | 3,820 | 3,900 |
| 60 | 2,540 | 2,560 |

With horsepower increased from 1350 to 1750 due to the new "C" type engine and numerous other improvements—three of the converted units are capable of the same work as four FT's. Chart at the left shows the tonnage comparisons in miles per hour.

PLANNING MATCHES MOTIVE POWER TO NEEDS

Many railroads are taking advantage of Electro-Motive's conversion facilities to meet increasing tonnage requirements at low cost and to supplement orders of new units. By scheduling in advance of need, the conversion of older locomotives to new, these roads are able to meet increasing power requirements as they occur, not months or years later.

For complete information on Electro-Motive's pro-

gram for making new locomotives from old (there are almost as many conversions as basic units), call your Electro-Motive representative. He will be glad to give you a detailed account of the costs involved for your particular units, and also show you the profit advantages in advance planning.

Be sure to see the Electro-Motive conversion presentation when it comes to your railroad.

ELECTRO-MOTIVE DIVISION • GENERAL MOTORS



LA GRANGE, ILLINOIS • Home of the Diesel Locomotive
In Canada: General Motors Diesel Ltd., London, Ontario

REVENUES AND EXPENSES OF RAILWAYS

(Dollar figures are stated in thousands; i.e., with last three digits omitted)

MONTH OF DECEMBER AND TWELVE MONTHS OF CALENDAR YEAR 1956

| Name of Road | Average mileage operated during period | Operating Revenues | | | Maint. Way and Structures | | | Operating Expenses | | | Operating ratio 1956-1955 | Total 1955 | Total 1956 | Trans- portation 1956 | Net railway from operation | Net Railway tax operating income 1956 |
|------------------------------------|--|--------------------|---------|--------------------|---------------------------|------------|---------------|--------------------|------------|---------------|---------------------------|------------|------------|-----------------------|----------------------------|---------------------------------------|
| | | Freight | Pass. | Total (inc. misc.) | Total 1955 | Total 1956 | Retire- ments | Total 1955 | Total 1956 | Retire- ments | | | | | | |
| Louisville & Nashville | Dec. 4,731 | 15,806 | 1,103 | 18,396 | 18,171 | 2,840 | 1,023 | 4,297 | 3,656 | 1,216 | 79.6 | 13,855 | 14,643 | 398 | 3,744 | 2,889 |
| 12 mos. | 4,732 | 18,744 | 10,098 | 212,398 | 181,206 | 30,385 | 25,263 | 4,523 | 38,218 | 12,551 | 79.1 | 168,063 | 140,756 | 79.1 | 44,335 | 31,821 |
| Maine Central | Dec. 944 | 2,933 | 1,012 | 2,933 | 2,933 | 22 | 420 | 366 | 80 | 80 | 80.8 | 2,933 | 2,933 | 22 | 420 | 366 |
| 12 mos. | 944 | 24,900 | 1,153 | 27,399 | 26,167 | 4,825 | 327 | 4,687 | 4,174 | 935 | 79.3 | 20,999 | 19,322 | 286 | 9,789 | 21,251 |
| Minneapolis & St. Louis | Dec. 1,397 | 1,549 | 4 | 1,615 | 1,617 | 531 | 37 | 276 | 277 | 74 | 85.8 | 1,397 | 1,397 | 37 | 276 | 277 |
| 12 mos. | 1,397 | 20,423 | 54 | 21,261 | 20,941 | 3,049 | 327 | 3,376 | 3,315 | 929 | 78.5 | 16,437 | 16,437 | 1,104 | 102 | 119 |
| Minneapolis, Northfield & Southern | Dec. 77 | 365 | ... | 368 | 364 | 23 | 18 | 3 | 37 | 37 | 11 | 44 | 88 | 287 | 274 | 74.0 |
| 12 mos. | 77 | 4,310 | ... | 4,320 | 4,332 | 300 | 379 | 26 | 404 | 338 | 126 | 324 | 991 | 2,428 | 2,093 | 1,039 |
| Minn., St. Paul & S. Ste. Marie | Dec. 3,224 | 4,811 | ... | 4,811 | 4,811 | 669 | 694 | 80 | 779 | 792 | 126 | 324 | 991 | 2,428 | 2,093 | 1,039 |
| 12 mos. | 3,224 | 44,811 | 883 | 47,100 | 41,616 | 9,662 | 8,313 | 720 | 811 | 7,620 | 1,451 | 11,228 | 16,731 | 37,300 | 10,378 | 3,466 |
| Missouri-Illinois | Dec. 172 | 387 | ... | 387 | 387 | 63 | 81 | 8 | 78 | 66 | 30 | 10 | 119 | 282 | 75.7 | 53 |
| 12 mos. | 172 | 5,803 | ... | 5,845 | 5,657 | 740 | 726 | 51 | 974 | 898 | 363 | 130 | 1,450 | 3,422 | 3,265 | 58.5 |
| Missouri-Kansas-Texas Lines | Dec. 3,183 | 5,433 | 234 | 6,368 | 5,913 | 893 | 936 | 90 | 1,120 | 861 | 264 | 282 | 2,622 | 5,242 | 4,975 | 1,126 |
| 12 mos. | 3,183 | 64,868 | 2,791 | 74,451 | 73,251 | 10,491 | 10,752 | 1,260 | 12,179 | 11,334 | 3,101 | 32,877 | 29,889 | 59,586 | 57,644 | 80.0 |
| Missouri Pacific | Dec. 9,682 | 20,694 | 1,245 | 24,754 | 25,090 | 3,904 | 3,929 | 455 | 4,179 | 4,179 | 142 | 115 | 1,285 | 2,224 | 2,436 | 691 |
| 12 mos. | 9,682 | 264,578 | 11,979 | 301,307 | 300,078 | 47,923 | 50,676 | 4,181 | 52,919 | 54,537 | 12,038 | 8,169 | 111,788 | 192,333 | 76.2 | 77.4 |
| Monon | Dec. 541 | 1,661 | ... | 1,661 | 1,661 | 251 | 191 | 37 | 307 | 335 | 74 | 114 | 788 | 1,582 | 326 | 107 |
| 12 mos. | 541 | 20,052 | 794 | 22,681 | 22,313 | 3,444 | 3,217 | 246 | 3,353 | 3,325 | 879 | 1,235 | 8,535 | 18,296 | 17,029 | 80.3 |
| Monongahela | Dec. 177 | 538 | ... | 540 | 441 | 74 | 67 | 11 | 59 | 60 | 12 | 185 | 333 | 305 | 61.7 | 69.1 |
| 12 mos. | 177 | 6,418 | ... | 6,454 | 5,530 | 895 | 778 | 192 | 709 | 663 | 138 | 110 | 1,285 | 2,224 | 2,436 | 691 |
| Nashville, Chatt. & St. Louis | Dec. 1,043 | 2,348 | ... | 2,348 | 2,348 | 332 | 503 | 48 | 408 | 406 | 142 | 115 | 1,285 | 2,224 | 2,436 | 691 |
| 12 mos. | 1,043 | 30,751 | 1,467 | 35,624 | 30,091 | 5,462 | 5,277 | 594 | 5,179 | 4,861 | 1,652 | 1,115 | 1,285 | 2,224 | 2,436 | 691 |
| New York Central | Dec. 10,613 | 47,451 | 98,594 | 780,435 | 762,666 | 84,328 | 92,646 | 14,973 | 137,326 | 127,058 | 27,169 | 15,083 | 335,316 | 603,721 | 81.2 | 79.2 |
| 12 mos. | 10,613 | 585,531 | 98,594 | 780,435 | 762,666 | 84,328 | 92,646 | 14,973 | 137,326 | 127,058 | 27,169 | 15,083 | 335,316 | 603,721 | 81.2 | 79.2 |
| Pittsburgh & Lake Erie | Dec. 221 | 3,672 | ... | 3,672 | 3,296 | 88 | 284 | 35 | 527 | 677 | 81 | 86 | 1,471 | 2,431 | 2,509 | 61.9 |
| 12 mos. | 221 | 39,130 | 732 | 42,163 | 41,301 | 4,650 | 4,829 | 84 | 5,277 | 5,277 | 192 | 148 | 1,762 | 2,038 | 2,038 | 421 |
| New York, Chicago & St. Louis | Dec. 2,179 | 13,665 | 186 | 14,363 | 13,923 | 1,450 | 1,482 | 14 | 1,762 | 2,038 | 421 | 347 | 5,565 | 10,309 | 9,762 | 71.8 |
| 12 mos. | 2,179 | 167,973 | 4,885 | 174,578 | 162,297 | 19,623 | 17,801 | 1,762 | 28,286 | 25,414 | 4,903 | 4,200 | 63,911 | 121,711 | 110,991 | 69.7 |
| New York, New Haven & Hartford | Dec. 1,767 | 91,715 | 31,518 | 162,450 | 155,119 | 19,516 | 18,339 | 3,334 | 25,173 | 21,933 | 4,578 | 2,979 | 73,296 | 131,780 | 127,036 | 81.1 |
| 12 mos. | 1,767 | 91,715 | 31,518 | 162,450 | 155,119 | 19,516 | 18,339 | 3,334 | 25,173 | 21,933 | 4,578 | 2,979 | 73,296 | 131,780 | 127,036 | 81.1 |
| New York Connecting | Dec. 21 | 302 | ... | 341 | 306 | 108 | 75 | 25 | 20 | 15 | ... | ... | ... | ... | ... | ... |
| 12 mos. | 21 | 3,810 | ... | 4,197 | 4,380 | 1,238 | 1,119 | 303 | 156 | 228 | ... | ... | ... | ... | ... | ... |
| New York, Ontario & Western | Dec. 541 | 407 | ... | 416 | 446 | 94 | 103 | 20 | 100 | 107 | 268 | 350 | 350 | 6,291 | 6,095 | 111.5 |
| 12 mos. | 541 | 5,408 | ... | 5,640 | 5,677 | 1,382 | 1,368 | 240 | 1,010 | 1,017 | 268 | 110 | 233 | 381 | 348 | 83.7 |
| New York, Susquehanna & Western | Dec. 120 | 4,353 | ... | 4,353 | 4,353 | 599 | 651 | 76 | 687 | 707 | 132 | 110 | 233 | 381 | 348 | 83.7 |
| 12 mos. | 120 | 4,553 | ... | 5,326 | 5,665 | 599 | 651 | 76 | 687 | 707 | 132 | 110 | 233 | 381 | 348 | 83.7 |
| Norfolk & Western | Dec. 2,132 | 18,701 | 366 | 20,046 | 18,489 | 2,577 | 1,966 | 311 | 3,845 | 3,326 | 820 | 403 | 6,513 | 14,204 | 11,928 | 70.9 |
| 12 mos. | 2,132 | 225,061 | 3,538 | 239,663 | 208,891 | 31,318 | 25,194 | 3,840 | 49,380 | 41,779 | 9,177 | 4,417 | 70,431 | 164,918 | 138,720 | 68.8 |
| Norfolk Southern | Dec. 604 | 944 | ... | 961 | 867 | 209 | 209 | 175 | 2,209 | 2,209 | 2,209 | 2,209 | 2,209 | 2,209 | 2,209 | 2,209 |
| 12 mos. | 604 | 10,518 | ... | 10,689 | 10,282 | 2,311 | 2,209 | 175 | 2,311 | 2,311 | 121 | 31 | 52 | 266 | 743 | 695 |
| Northern Pacific | Dec. 6,832 | 12,081 | 319 | 13,891 | 14,549 | 2,768 | 2,111 | 559 | 2,661 | 3,168 | 602 | 411 | 6,772 | 13,598 | 13,450 | 97.9 |
| 12 mos. | 6,862 | 167,178 | 6,915 | 188,170 | 183,033 | 27,948 | 25,533 | 2,768 | 33,656 | 32,508 | 7,143 | 4,712 | 74,531 | 151,534 | 144,919 | 80.5 |
| Northwestern Pacific | Dec. 329 | 770 | ... | 786 | 706 | 266 | 234 | 26 | 80 | 92 | 4 | 372 | 756 | 2,702 | 2,702 | 2,702 |
| 12 mos. | 329 | 12,610 | 37 | 12,420 | 14,072 | 2,926 | 2,829 | 223 | 14,160 | 15,891 | 2,966 | 1,212 | 40,802 | 69,772 | 70,598 | 83.9 |
| Pennsylvania | Dec. 9,963 | 60,310 | 11,483 | 81,400 | 78,831 | 7,926 | 7,926 | 1,791 | 14,160 | 15,891 | 2,966 | 1,212 | 40,802 | 69,772 | 70,598 | 83.9 |
| 12 mos. | 9,963 | 766,908 | 123,782 | 991,107 | 934,973 | 105,466 | 101,624 | 17,437 | 196,250 | 196,250 | 34,819 | 16,443 | 446,241 | 816,761 | 768,201 | 82.4 |
| Penn-Reading Seashore Lines | Dec. 358 | 599 | 76 | 699 | 676 | 106 | 204 | 694 | 1,536 | 1,333 | 306 | 11 | 513 | 798 | 861 | 114.3 |
| 12 mos. | 358 | 7,684 | 1,633 | 9,600 | 9,266 | 2,556 | 2,384 | 694 | 2,599 | 2,728 | 5,195 | 2,243 | 53,905 | 105,752 | 92,372 | 76.5 |
| Piedmont & Northern | Dec. 128 | 475 | ... | 484 | 499 | 52 | 59 | 5 | 42 | 40 | 8 | 39 | 94 | 279 | 296 | 296 |
| 12 mos. | 128 | 5,578 | ... | 5,693 | 5,299 | 914 | 578 | 56 | 368 | 367 | 113 | 347 | 999 | 2,644 | 2,644 | 2,644 |
| Pittsburgh & West Virginia | Dec. 132 | 755 | ... | 760 | 693 | 54 | 578 | 56 | 368 | 367 | 113 | 347 | 999 | 2,644 | 2,644 | 2,644 |
| 12 mos. | 132 | 9,182 | ... | 9,230 | 8,625 | 1,285 | 1,285 | 25 | 1,635 | 1,505 | 450 | 792 | 2,476 | 6,831 | 6,319 | 74.0 |
| Reading | Dec. 1,304 | 10,836 | 642 | 12,265 | 11,216 | 1,409 | 1,438 | 104 | 1,635 | 1,505 | 450 | 792 | 2,476 | 6,831 | 6,319 | 74.0 |
| 12 mos. | 1,305 | 122,889 | 7,012 | 138,280 | 119,623 | 17,885 | 15,950 | 2,310 | 25,939 | 22,726 | 5,195 | 2,243 | 53,905 | 105,752 | 92,372 | 76.5 |
| Richmond, Fredericksburg & Potomac | Dec. 118 | 1,423 | 561 | 2,385 | 2,368 | 178 | 221 | 26 | 348 | 315 | 67 | 30 | 855 | 1,548 | 1,544 | 64.9 |
| 12 mos. | 118 | 17,682 | 5,017 | 27,130 | 26,274 | 2,706 | 3,147 | 295 | 3,798 | 3,859 | 806 | 311 | 9,018 | 17,512 | 17,619 | 65.2 |
| | | | | | | | | | | | | | | | | |

REVENUES AND EXPENSES OF RAILWAYS

(Dollar figures are stated in thousands; i.e., with last three digits omitted)

MONTH OF DECEMBER AND TWELVE MONTHS OF CALENDAR YEAR 1956

| Name of Road | Average mileage operated during period | Operating Revenues | | Operating Expenses | | Total | Operating ratio | Total | Operating ratio | Net income | Net income |
|--------------------------------------|--|--------------------|-------|--------------------|-------|-------|-----------------|-------|-----------------|------------|------------|
| | | Freight | Pass. | Freight | Pass. | 1956 | | 1956 | | 1956 | |
| Rutland..... | Dec. 391 | 4,393 | 419 | 394 | 62 | 49 | 62 | 338 | 339 | 81 | 15 |
| St. Louis-San Francisco..... | Dec. 391 | 4,393 | 419 | 394 | 62 | 49 | 62 | 338 | 339 | 81 | 15 |
| St. Louis-San Francisco & Texas..... | Dec. 391 | 4,393 | 419 | 394 | 62 | 49 | 62 | 338 | 339 | 81 | 15 |
| St. Louis-Southwestern..... | Dec. 391 | 4,393 | 419 | 394 | 62 | 49 | 62 | 338 | 339 | 81 | 15 |
| Savannah & Atlanta..... | Dec. 391 | 4,393 | 419 | 394 | 62 | 49 | 62 | 338 | 339 | 81 | 15 |
| Seaboard Air Line..... | Dec. 391 | 4,393 | 419 | 394 | 62 | 49 | 62 | 338 | 339 | 81 | 15 |
| Southern Railway..... | Dec. 391 | 4,393 | 419 | 394 | 62 | 49 | 62 | 338 | 339 | 81 | 15 |
| Alabama Great Southern..... | Dec. 391 | 4,393 | 419 | 394 | 62 | 49 | 62 | 338 | 339 | 81 | 15 |
| Cinn., New Orleans & Texas Pac..... | Dec. 391 | 4,393 | 419 | 394 | 62 | 49 | 62 | 338 | 339 | 81 | 15 |
| Georgia Southern & Florida..... | Dec. 391 | 4,393 | 419 | 394 | 62 | 49 | 62 | 338 | 339 | 81 | 15 |
| New Orleans & Northeastern..... | Dec. 391 | 4,393 | 419 | 394 | 62 | 49 | 62 | 338 | 339 | 81 | 15 |
| Southern Pacific..... | Dec. 391 | 4,393 | 419 | 394 | 62 | 49 | 62 | 338 | 339 | 81 | 15 |
| Texas & New Orleans..... | Dec. 391 | 4,393 | 419 | 394 | 62 | 49 | 62 | 338 | 339 | 81 | 15 |
| Spokane International..... | Dec. 391 | 4,393 | 419 | 394 | 62 | 49 | 62 | 338 | 339 | 81 | 15 |
| Spokane, Portland & Seattle..... | Dec. 391 | 4,393 | 419 | 394 | 62 | 49 | 62 | 338 | 339 | 81 | 15 |
| Tennessee Central..... | Dec. 391 | 4,393 | 419 | 394 | 62 | 49 | 62 | 338 | 339 | 81 | 15 |
| Texas & Pacific..... | Dec. 391 | 4,393 | 419 | 394 | 62 | 49 | 62 | 338 | 339 | 81 | 15 |
| Texas Mexican..... | Dec. 391 | 4,393 | 419 | 394 | 62 | 49 | 62 | 338 | 339 | 81 | 15 |
| Toledo, Peoria & Western..... | Dec. 391 | 4,393 | 419 | 394 | 62 | 49 | 62 | 338 | 339 | 81 | 15 |
| Union Pacific..... | Dec. 391 | 4,393 | 419 | 394 | 62 | 49 | 62 | 338 | 339 | 81 | 15 |
| Virginian..... | Dec. 391 | 4,393 | 419 | 394 | 62 | 49 | 62 | 338 | 339 | 81 | 15 |
| Wabash..... | Dec. 391 | 4,393 | 419 | 394 | 62 | 49 | 62 | 338 | 339 | 81 | 15 |
| Ann Arbor..... | Dec. 391 | 4,393 | 419 | 394 | 62 | 49 | 62 | 338 | 339 | 81 | 15 |
| Western Maryland..... | Dec. 391 | 4,393 | 419 | 394 | 62 | 49 | 62 | 338 | 339 | 81 | 15 |
| Western Pacific..... | Dec. 391 | 4,393 | 419 | 394 | 62 | 49 | 62 | 338 | 339 | 81 | 15 |
| Wisconsin Central..... | Dec. 391 | 4,393 | 419 | 394 | 62 | 49 | 62 | 338 | 339 | 81 | 15 |



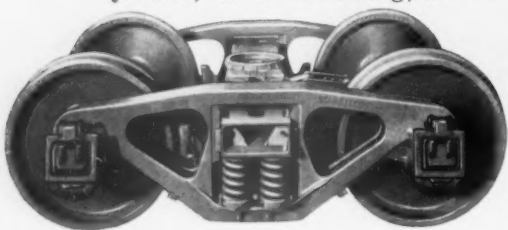
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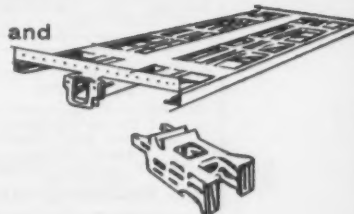
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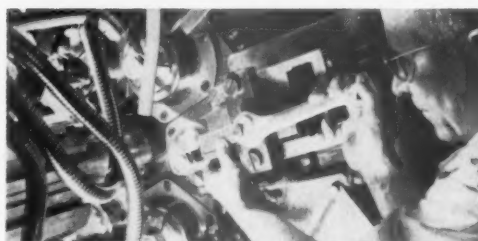


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Disagreeing with Mr. Grotz

The suggestion of W. Arthur Grotz, president of the Western Maryland* — that the railroads seek either federal loans or guarantees to finance the purchase of freight cars—by no means reflects the opinion of most railway leaders. Of several comments we have had, that by President P.M. Shoemaker of the Lackawanna is the most comprehensive thus far received. Mr. Shoemaker writes:

Service Comes First

"I agree with Mr. Grotz that, in the broad picture of railroad economics, equipment and service must precede increased earnings, as such, but I would add a third ingredient, namely simplified and proper pricing.

"I do not agree with the suggestion of Mr. Grotz that national interest in sound transportation requires that the railroads have further help from the federal government. I am not sure what is intended by the expression 'further help' in this situation, but perhaps a number of questions of principle should be raised:

"1. Is there something about the railroad business that now makes it particularly deserving to be a recipient of public support and thus differentiated from most of our private enterprise system?

"2. Has there been any implication that the resources of private financing for equipment have become exhausted?

"3. If the industry could be supplied in a reasonable period of time with \$10 billion worth of additional equipment, what are the mechanics under which this brings an automatic prosperity to the industry?

"4. Is there not merit to the suggestion that a renewed dedication to improving service, to better understanding customer requirements, and to establishing a realistic pricing system, are at least as important to revitalize the industry on a healthy growth basis as equipment, as such?

"5. The federal government now has some 114 agencies engaged in the lending of federal funds for various purposes. Does even a casual look at the 1958 federal budget indicate that such a loan program, as is proposed, can be accomplished without cost to the taxpayers?

"6. Will the guarantee of equipment obligations by the federal government strengthen or weaken the stamina of railroad management?

"7. Does not the theory of spreading out or deferring debt, for the purpose of immediately conserving cash, or making funds available for other purposes, eventually result in the same kind of a pattern that we are now faced with in the federal debt which, in the next fiscal year, will amount to ten cents out of every income dollar?

*Railway Age, Feb. 11, p. 30.

THIS RELATES TO:

- 1—Challenging competition
- 2—Holding to high service standards
- 3—Increasing internal strength
- 4—Getting a higher level of earnings
- 5—Improving tools and methods
- 6—Seeking a friendlier environment

"8. If there is any justification for government support, would a reasonable premise not be to relate it to defense needs rather than normal business activities?

"Perhaps there are other questions which can and should appropriately be raised, but my conviction is that government aid is an insidious antidote to an acknowledgment of failure in measuring up to our heritage as businessmen. Until the opportunities of our private capitalistic system have become exhausted I see nothing but danger, defeatism and deterioration from such a course as proposed. I have great respect for Mr. Grotz as a banker and as a railroader, but I do not agree with his suggestions."

An Inescapable Problem

In publishing Mr. Grotz' proposals, this paper made it clear that it did so—not because we agree with them—but because these pages are always open to responsible railway executives to make known their personal opinions on important questions of industry policy. Frequent inadequacy of freight car supply is certainly one of the challenging problems that railway leadership simply *must solve*.

If the railroads should get to depending on large-scale government financing—not as a crisis operation, as in the days of the Reconstruction Finance Corporation, but as a continuing policy—then out-and-out government control could be a next easy step.

Mr. Grotz is right when he emphasizes the importance of assuring shippers an ample supply of freight cars. But other industries have followed the primrose path of permanent government financing to the degree that, today in these industries, only the suppliers are left as a part of the enterprise system. The alternative, however, is certainly not inaction or slow motion in taking steps to correct the fundamental difficulties, of which inadequate car supply is one of the most painful symptoms.

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